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जल गुणवत्ता वर्ष पुस्तिका

WATER QUALITY YEAR BOOK

जून 2017 – मई 2018 June 2017 - May 2018

घाघरा बेसिन

GHAGHRA BASIN

जल विज्ञानीय प्रेक्षण परिमण्डल
HYDROLOGICAL OBSERVATION CIRCLE

केन्द्रीय जल आयोग
CENTRAL WATER COMMISSION

वाराणसी
VARANASI

PREFACE

Water is a prime natural resource and basic human need. The National Water Policy lays stress on planning and development of water resources on a national perspective. The prime requisite of water resources planning is indeed an efficient information system on the quantity and quality of this time and space variable precious natural asset.

The Central Water Commission in its capacity as an apex technical organisation in the field of water resources development endeavors the gigantic task of collection and compilation of Water Quality data incorporating the quality and quantity of available waters in various basins of the country. The Water Quality Books of various river basins of the country are being published by Central Water Commission in order to make its effective and efficient use.

The present volume contains information and trend on various water quality parameters measured at **10 water quality stations on river Ghaghra** and its tributaries for the year 2017-2018.

The valuable guidance and inspiration of **Shri Y.K. Sharma, Member**, **RM**, CWC, New Delhi and **Shri Bhopal Singh, Chief Engineer**, Upper Ganga Basin Organisation, CWC, Lucknow is gratefully acknowledged.

I would like to place on record the special contribution made by **officers and staff** of **Hydrological Observation Circle, Varanasi and Middle Ganga Division-I, Lucknow** in compilation of information and publication of the report in present form.

It is hoped that this publication will be found useful for the planners, managers and users in the field of water resources.

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HYDROLOGICAL OBSERVATION CIRCLE
VARANASI

September, 2018

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1. INTRODUCTION

1.1. Scope

1.1.1. Rapidly increasing population, rising standard of living, exponential growth of industrialized and urbanization have exposed the Water Resources in general and rivers in particular to various form of degradation. It is therefore necessary to keep vigilant watch of quality of available fresh waters whose major sources in our country are rivers.

1.2. Source of Information

Middle Ganga Division No. I, Lucknow under the Hydrological Observation Circle, Central Water Commission, Varanasi is conducting Water Quality observations at nine sites in Ghaghra sub-basin. The finalized data for the year 2017-2018 is presented in the book. The details of the site is given in Table 1 and same has been located in index map .

T A B L E 1

Sl.No	Name of site	Station Code	Station Code as per e-SWIS
1.	Ghat at Saryu	GGU63E9	029-MGD1LKN
2.	Paliakalan at Sarda	GGU6OI6	006-MGD1LKN
3.	Elgin Bridge at Ghaghra	GGUOOS2	010-MGD1LKN
4.	Ayodhya at Ghaghra	GGUOOM9	011-MGD1LKN
5.	Basti at Kwano	GGU4OJ3	026-MGD1LKN
6.	Balrampur at Rapti	GGU3OU4	018-MGD1LKN
7.	Regauli at Rapti	GGU3OH1	022-MGD1LKN
8.	Birdghat at Rapti	GGU3OF5	023-MGD1LKN
9.	Turtipar at Ghaghra	GGUOOF1	022-MGD1LKN
10.	Bansi at Rapti	GGU30N9	019-MGD1LKN

1.3. Observation Technique

Water samples from all the Water Quality stations are collected on 1st working day of the month and transported to divisional laboratory where systematic analysis is conducted for the determination of constituents like pH, Specific Conductance, Potassium (as K^{+}), Sodium (as Na^{+}), Calcium (as Ca^{++}), Magnesium (as Mg^{++}), Iron (as Fe^{++}), Nitrogen Ammoniacal (as NH_4-N), Carbonate (as CO_3^{--}), Bicarbonate (as HCO_3^{-}), Chloride (as Cl^{-}), Fluoride (as F^{-}), Sulphate (as SO_4^{--}), Nitrate (as NO_3^{-}), Nitrite (as NO_2^{-}), Phosphate (as PO_4^{---}), Silica (as SiO_2) and Boron (as B).

pH and Specific Conductance are determined by digital pH meter and conductivity meter. Cl^{-}, CO_3^{--}, HCO_3^{-} , Ca^{++} and Mg^{++} are estimated by titration method. SO_4^{--} is estimated by turbidimetric method with the help of Nephelometer. Na^{+} and K^{+} estimation is done by the method of flame emission with the help of Flame photometer and rest by the method of colorimetric estimation with the help of U-V Spectrophotometer.

In addition to the above, Dissolved Oxygen is also estimated. Biochemical Oxygen Demand, Chemical Oxygen Demand and Microbiological Parameters such as Total Coliform & Fecal Coliform are determined at selected sites.

2. WATER QUALITY DATA

2.1 Explanatory Notes

The explanatory notes, described hereunder, are designed to assist in the interpretation of various parameters contained in the data presented subsequently.

i) The water samples are collected at a regular frequency of once in a month usually on the 1st working day from the main flowing portion of the stream.

ii) Dissolved Oxygen is measured at the site laboratory/ Divisional Laboratory.

iii) The other water quality parameters are analyzed at the divisional laboratory.

iv) Chemical Indices, namely, Hardness Number, Sodium Percentage, Sodium Adsorption Ratio and Residual Sodium Carbonate are calculated as follows :

a. Hardness Number (HAR) is calculated by adding the total Ca^{++} and Mg^{++} in the sample expressed as equivalent parts of $CaCO_3$.

b. Sodium Percentage (S.P.) is given by

$$S.P.= (Na^{+} x100) / (Ca^{++} + Mg^{++} + Na^{+} + K^{+})$$

Ionic concentrations being in meq/litre.

c. Sodium Adsorption Ratio (S.A.R.) is given by

$$S.A.R. = Na^{+} / \{(Ca^{++} + Mg^{++})/2\}^{½}$$

Where the ionic concentration being in meq/litre.

d. Residual Sodium Carbonate (R.S.C.) is given by

$$R.S.C. = (CO_3^{--} + HCO_3^{-}) - (Ca^{++} + Mg^{++})$$

Where concentration of all the ions being in meq/litre.

v) Water year ranges from June 1st of one calendar year to May 31st of the next calendar year and covers one complete hydrological cycle.

vi) The gauging station code number is a unique seven column alpha-numeric reference number which facilitates storage and retrieval of water quality data in data banks. The first column is identifier of either an integral river basin or for convenience, a region having several contiguous river catchments. This is followed by a column which identifies an independent river system which either have one or more outlets to the sea or crosses international border to enter another country. The third, fourth and fifth column spaces denote first, second and third order tributaries respectively from the mouth upstream. The sixth and seventh column spaces indicate the location of the gauging station in one of the 225 slots earmarked on the river. The blank column spaces are filled by zero.

2.2 Method of Presentation

In the succeeding pages, station-wise water quality data and its trend is presented, comprising history sheet and water quality analysis tables.

History sheet gives concise description of the water quality observation station. The water quality analysis tables are given season-wise (flood, winter, summer) for the river water. The samples of water quality analysis are collected once a month as already mentioned in para 2.1 above.

3. WATER QUALITY TOLERANCE AND CLASSIFICATION

As per ISI-IS: 2296-1982, the tolerance limits of parameters are specified as per classified use of water (Table 1,2,3,4,5 Annexed) depending on various uses of water. The following classifications have been adopted in India.

Classification	Type of use
Class A	Drinking water source without conventional treatment but After disinfection.
Class B	Outdoor bathing.
Class C	Drinking water source with conventional treatment followed by disinfection.
Class D	Fish culture and wild life propagation .
Class E	Irrigation , Industrial cooling or controlled waste disposal.

TABLE-1

TOLERANCE LIMITS FOR INLAND SURFACE WATERS, CLASS – A

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S. No.	Characteristic	Tolerance
(i)	pH value	6.5 to 8.5
(ii)	Dissolved Oxygen, mg/l, ((Min))	6.0
(iii)	Bio-chemical Oxygen Demand ((Max))	2.0
(iv)	Total Coliform Organisms, MPN/100 ml,((Max))	50
(v)	Colour, Hazen units, ((Max))	10
(vi)	Odour	unobjectionable
(Vii)	Taste	Agreeable taste
(viii)	Total Dissolved Solids, mg/l, (Max)	500
(ix)	Total Hardness (as CaCO3), mg/l ,(Max)	300
(x)	Calcium Hardness (as CaCO3), mg/l, (Max)	200
(xi)	Magnesium (as CaCO3), mg/l,(Max)	100
(xii)	Copper (as Cu), mg/l, (Max)	1.5
(xiii)	Iron (as Fe), mg/l,(Max)	0.3
(xiv)	Manganese (as Mn), mg/l,(Max)	0.5
(xv)	Chlorides (as Cl), mg/l,(Max)	250
(xvi)	Sulphate (as SO4), mg/l ,(Max)	400
(xvii)	Nitrates (as NO2), mg/l,(Max)	20
(xviii)	Fluorides (as F,) mg/l,(Max)	1.5
(xix)	Phenolic compounds(as C6H5OH), mg/l,(Max)	0.002
(xx)	Mercury (as Hg), mg/l ,(Max)	0.001
(xxi)	Cadmium (as Cd), mg/l,(Max)	0.01
(xxii)	Selenium (as Se), mg/l ,(Max)	0.01
(xxiii)	Arsenic (as As), mg/l,(Max)	0.05
(xxiv)	Cyanides (as CN), mg/l, (Max)	0.05
(xxv)	Lead (as Pb), mg/l, (Max)	0.1
(xxvi)	Zinc (as Zn), mg/l, (Max)	15
(xxvii)	Chromium (asCr6+), mg/l,(Max)	0.05
(xxviii)	Anionic detergents, (as MBAS), mg/l ,(Max) .	0.2
(xxix)	Poly-nuclear aromatic hydrocarbons (PAH),	0.2
(xxx)	Barium (as Ba), mg/l ,(Max)	1.0
(xxxi)	Silver (as Ag), mg/l (Max)	0.05
(xxxii)	Pesticides	Absent
(xxxiii)	Alpha emitters, µc/ml, (Max)	10^{-9}
(xxxiv)	Beta emitters, µc/ml, (Max)	10^{-8}

TABLE- 2

TOLERANCE LIMITS FOR INLAND SURFACE WATERS, CLASS – B

S. No.	Characteristic	Tolerance
(i)	pH Value	6.5 to 8.5
(ii)	Dissolved Oxygen, mg/l,(Min)	5.0
(iii)	Biochemical Oxygen Demand (5 days at 20 °C), (Max)	3.0
(iv)	Total Coliform Organisms, MPN/100 ml, (Max)	500
(v)	Fluorides (as F)<mg/l, (Max)	1.5
(vi)	Colour, Hazen units, (Max)	300
(vii)	Cyanides (as CN), mg/l, (Max)	0.05
(viii)	Arsenic (as As), mg/l, (Max)	0.2
(ix)	Phenolic Compounds (as C_6H_5OH) mg/l, (Max)	0.005
(x)	Chromium (as Cr6+), mg/l, (Max)	1.0
(xi)	Anionic detergents (as MBAS), mg/l, (Max)	1.0
(xii)	Alpha emitters, µc/ml, (Max)	10^{-8}

TABLE- 3

TOLERANCE LIMITS FOR INLAND SURFACE WATERS, CLASS – C

S. No.	Characteristic	Tolerance
(i)	pH Value	6.5 to 8.5
(ii)	Dissolved Oxygen, mg/l (Min)imum	4.0
(iii)	Biochemical Oxygen Demand	3.0
(iv)	Total coliform organisms, MPN/100 ml, (Max)	5000
(v)	Colour, Hazen units, (Max)	300
(vi)	Fluorides (as F), mg/l ,(Max)	1.5
(vii)	Cadmium (as Cd), mg/l, (Max)	0.01
(viii)	Chlorides (as Cl), mg/l, (Max)	600
(ix)	Chromium (as Cr6+), mg/l, (Max)	0.05
(x)	Cyanides (as CN), mg/l, (Max)	0.05
(xi)	Total Dissolved Solids, mg/l, (Max)	1500
(xii)	Selenium (as Se), mg/l, (Max)	0.05
(xiii)	Sulphates (as SO4), mg/l, (Max)	400
(xiv)	Lead (as Pb), mg/l, (Max)	0.1
(xv)	Copper (as Cu),mg/l,(Max)	1.5
(xvi)	Arsenic (as As), mg/l, (Max)	0.2
(xvii)	Iron (as Fe), mg/l, (Max)	50
(xviii)	Phenolic compounds (as C6H5OH), mg/l, (Max)	0.005
(xix)	Zinc (as Zn), mg/l, (Max)	15
(xx)	Insecticides, mg/l, (Max)	Absent
(xxi)	Anionic detergents (as MBAS), mg/l, (Max)	1.0
(xxii)	Oils and grease, mg/l, (Max)	0.1
(xxiii)	Nitrates (as NO3), mg/l,(Max)	50
(xxiv)	Alpha emititers, µc/mg, (Max)	10-9
(xxv)	Beta emitters, µc/ml, (Max)	10-8

TABLE-4

TOLERANCE LIMITS FOR INLAND SURFACE WATERS, CLASS -D

S. No.	Characteristic	Tolerance
(i)	pH value	6.5 to 8.5
(ii)	Dissolved Oxygen, mg/l, (Min).	4.0
(iii)	Free Ammonia (as N), mg/l, (Max).	1.2
(iv)	Electrical Conductance at 25 °C, µ S, (Max)	1000
(v)	Free Carbon Dioxide (as C02),mg/l, (Max)	6.0
(vi)	Oils and Grease, mg/l, (Max)	0.1
(vii)	Alpha emitters, µ c/ml, (Max)	10^{-9}
(viii)	Beta emitters, µ c/ml, (Max)	10^{-8}

TABLE- 5

TOLERANCE LIMITS FOR INLAND SURFACE WATERS,CLASS -E

S. No.	Characteristic	Tolerance
(i)	pH value	6.0 to 8.5
(ii)	Electrical Conductance at 25°C, µ S, (Max)	2250
(iii)	Sodium Adsorption Ratio, (Max)	26
(iv)	Boron (as B), mg/l, (Max)	2.0
(v)	Total Dissolved Solids, (inorganic), mg/l, (Max)	2100
(vi)	Sulphates (as SO4), mg/l, (Max)	1000
(vii)	Chlorides (as Cl), Mg/l, (Max)	600
(viii)	Sodium Percentage, (Max)	60
(ix)	Alpha emitters, µ c/ml, (Max)	10^{-9}
(x)	Beta emitters, µ c/ml, (Max)	10^{-8}

4.0 TREND ANAYSIS / SCENARIO IN GHAGHRA BASIN

The river Ghaghra rises in the southern slopes of the Himalayas in Tibet, in the glaciers of Mapchachungo. The river flows south through Nepal as the Karnali River and flows through one of the most deserted and least explored area of Nepal. Seti River is a 202 km long stream feeding this river and drains the western part of the catchment, and joins the Karnali River in Doti north of Dundras Hill. Another feeder stream is the Bheri river that is 264 km long and drains in the eastern part of the catchment and converges with the Karnali River near Kuineghat in Surkhet. Moving southwards across the Siwalik Hills, it splits into two branches, first Geruva on the left bank and Kauraliaon the right bank near downstream Chisapani to rejoin south of the Indian border and form the Ghaghra proper.

Middle Ganga Division-1, Lucknow, Central Water Commission, under Hydrological Observation Circle, Varanasi has established a network of three monitoring stations on river Ghaghra. Starting from up-stream, there are three Water Quality monitoring stations at the Ghaghra river named Elginbridge, Ayodhya and Turtipar. Ghaghra basin map showing various sites on Ghaghra and Rapti, other tributaries like Sharda, Kwano and Sarju is given below.

Major Rivers : River Ghaghra is the major river in Middle Ganga Division –I, Lucknow. Middle Ganga Division -I, Lucknow has established a network of 10 Water quality monitoring stations in Ghaghra Basin & Rapti Basin under it's jurisdiction. This division is monitoring the water quality of Ghaghra at 3 site namely Elginbridge,Ayodhya and Turtipar and sites Balrampur, Bansi, Regauli and Birdghat at Rapti, Paliakalan at Sharda, Basti at Kwano and Ghat at Sarju The monitoring of surface waters is done on monthly basis. Water samples are analysed for physico-chemical and bacteriological parameters apart from the field observations.

W.Q. Network : Details of water quality station under jurisdiction of Middle Ganga Division – I , Lucknow are tabulated below.

S.No.	Name of Site	River	Classification
1	Elginbridge	Ghaghra	Trend
2	Ayodhya	Ghaghra	Flux
3	Turtipar	Ghaghra	Flux
4	Balrampur	Rapti	Trend
5	Bansi *	Rapti	Trend
6	Regauli	Rapti	Trend
7	Birdghat	Rapti	Flux
8	Paliakalan	Sharda	Trend
9	Basti	Kwano	Flux
10	Ghat	Sarju	Trend

* Bansi Site opened on 01/07/2014.

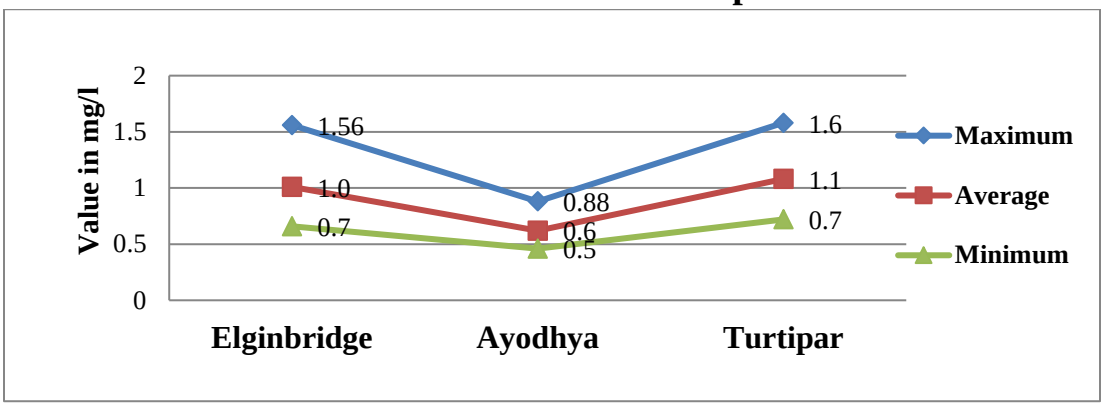
Analysis : To study the water quality / scenario in river Ghaghra, BOD, DO, fluoride and TDS parameters have been considered. Average value of these parameter for the period since inception(Inception to May 2017), last 10 years (Jun 2008 to May 2018) and last one year (Jun 2017 to May 2018) has been depicted in tables and figures below.

4.1 River : GHAGHRA (River 1) :

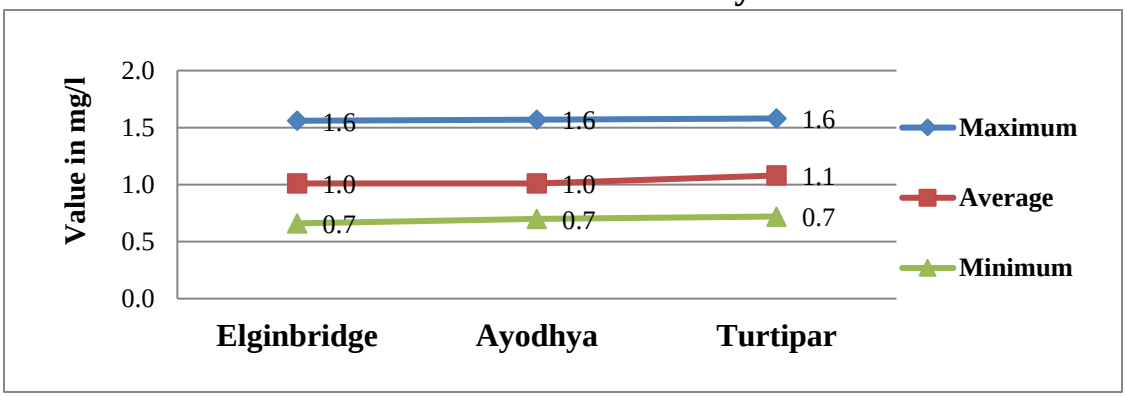
4.1.1 BOD in mg/l

Site Name (From U/S to D/S)	Inception Date	Avg. of Yearly Maximum			Avg. of Yearly Minimum			Annual Average		
		Since inception	Past 10 year	Current year	Since inception	Past 10 year	Current year	Since inception	Past 10 year	Current year
Elginbridge	15.03.1969	1.56	1.56	3.90	0.66	0.66	1.20	1.01	1.01	1.90
Ayodhya	01.07.1983	0.88	1.57	3.90	0.46	0.70	1.00	0.62	1.01	1.80
Turtipar	01.07.1983	1.58	1.58	3.90	0.72	0.72	1.00	1.08	1.08	2.30

Parameter : BOD since inception



Parameter : BOD last 10 year



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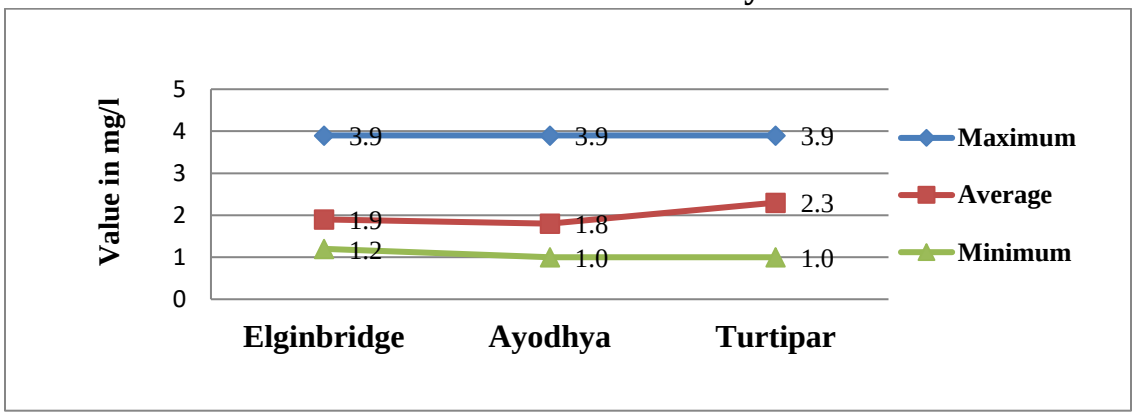
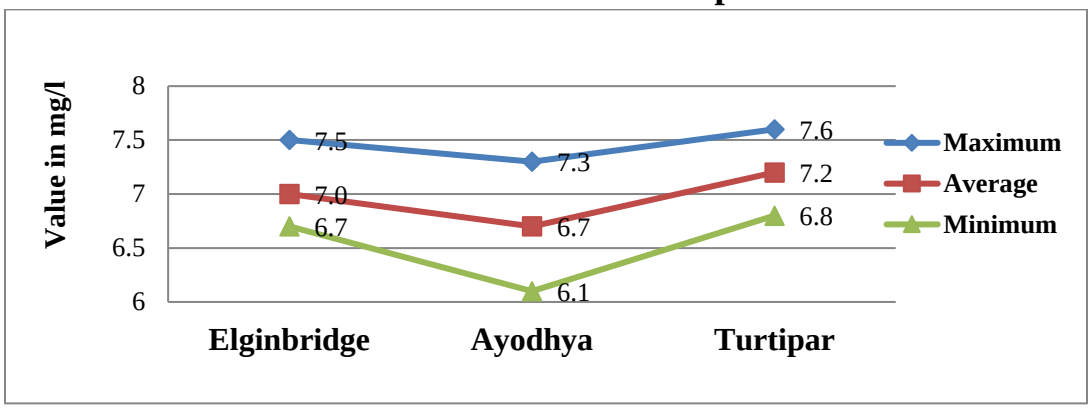


4.1.2 DO in mg/l

Site Name (From U/S to D/S)	Inception Date	Avg. of Yearly Maximum			Avg. of Yearly Minimum			Annual Average		
		Since inception	10 year	One year	Since inception	10 year	One year	Since inception	10 year	One year
Elginbridge	15.03.1969	7.50	7.60	8.20	6.70	6.60	4.90	7.00	7.10	6.50
Ayodhya	01.07.1983	7.30	7.88	8.60	6.10	6.60	5.10	6.70	7.25	7.00
Turtipar	01.07.1983	7.60	7.70	8.40	6.80	6.90	5.30	7.20	7.20	6.60

Parameter : DO since inception



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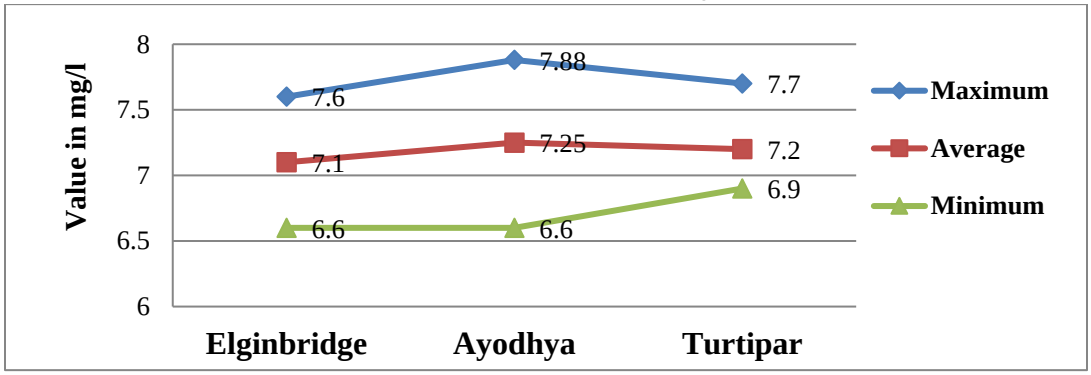
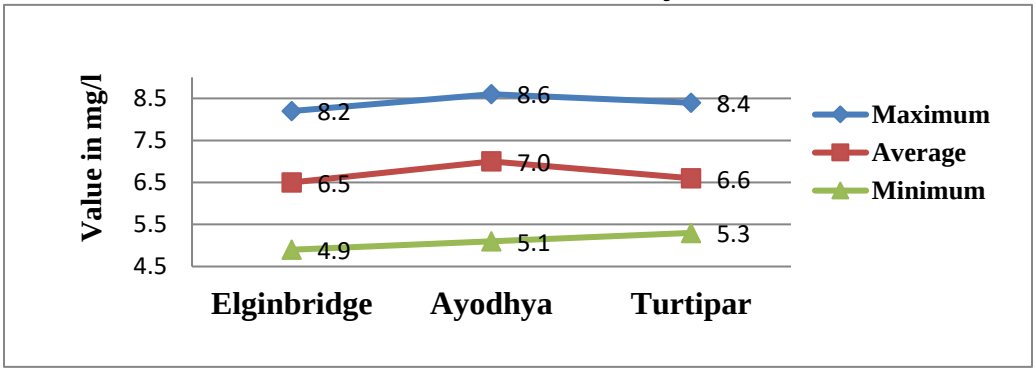


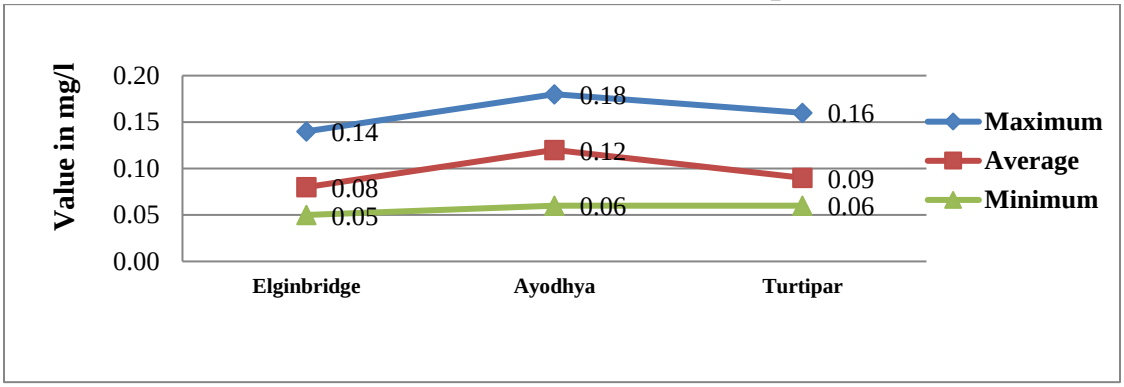
Parameter : DO last 1 year



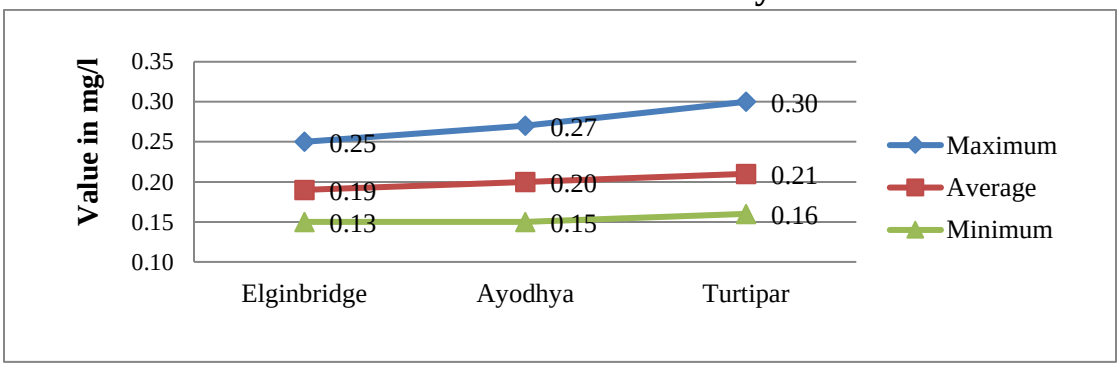
4.1.3 Fluoride in mg/l

Site Name (From U/S to D/S)	Inception Date	Avg. of Yearly Maximum			Avg. of Yearly Minimum			Annual Average		
		Since inception	10 year	One year	Since inception	10 year	One year	Since inception	10 year	One year
Elginbridge	15.03.1969	0.14	0.25	0.27	0.05	0.13	0.15	0.08	0.19	0.21
Ayodhya	01.07.1983	0.18	0.27	0.46	0.06	0.15	0.18	0.12	0.20	0.23
Turtipar	01.07.1983	0.16	0.30	0.47	0.06	0.16	0.28	0.09	0.21	0.33

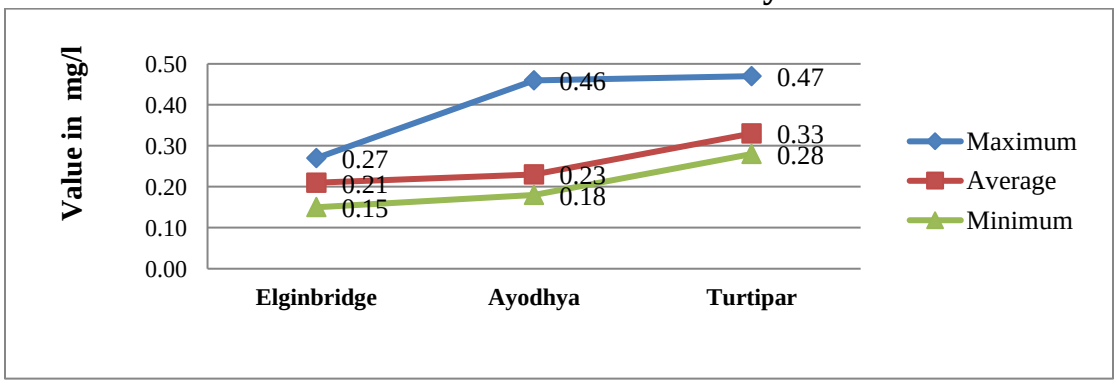
Parameter : Fluoride since inception



Parameter : Fluoride last 10 year

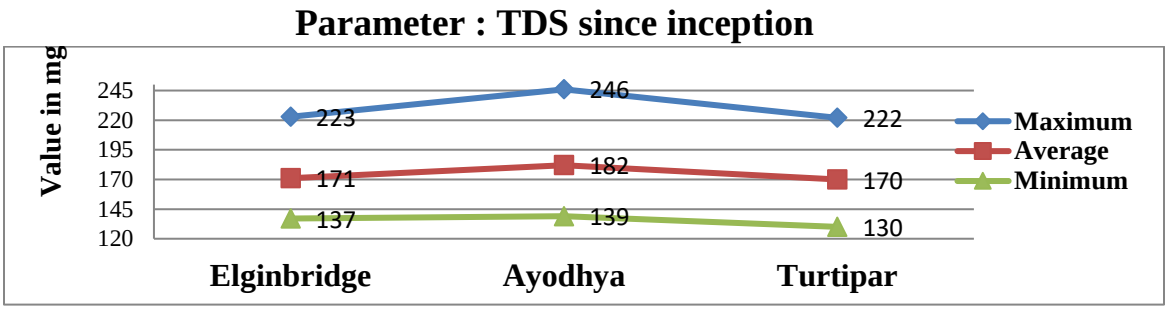


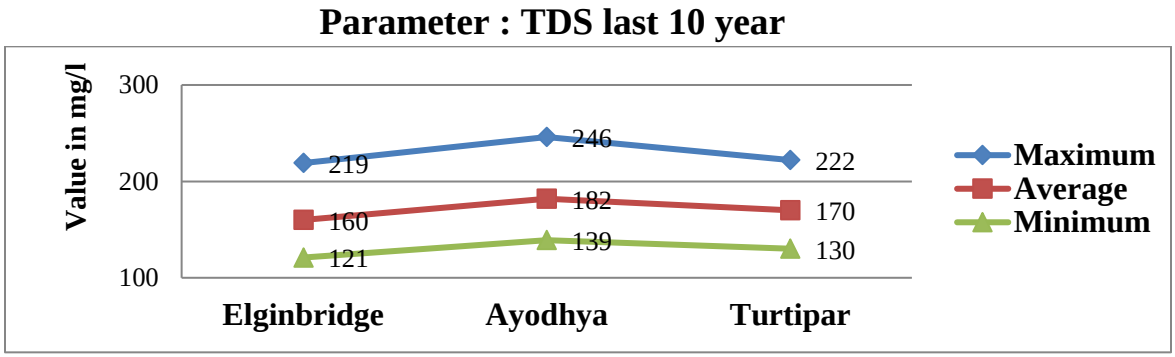
Parameter : Fluoride last one year

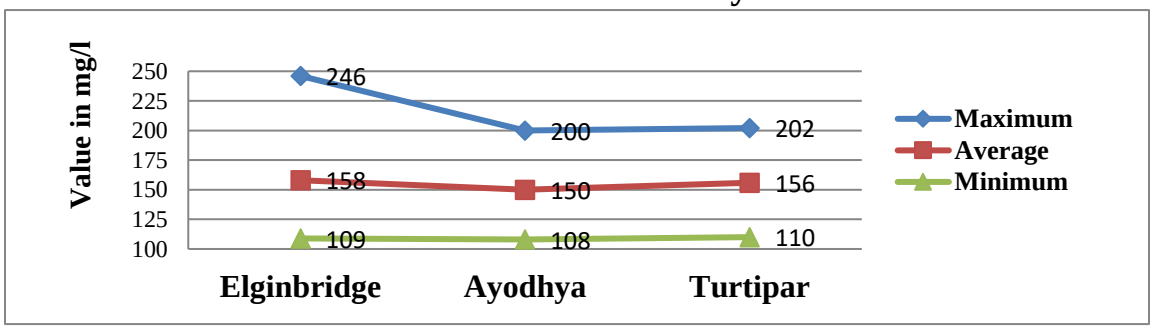


4.1.4 TDS in mg/l

Site Name (From U/S to D/S)	Inception Date	Avg. of Yearly Maximum			Avg. of Yearly Minimum			Annual Average		
		Since inception	10 year	One year	Since inception	10 year	One year	Since inception	10 year	One year
Elginbridge	15.03.1969	223	219	246	137	121	109	171	160	158
Ayodhya	01.07.1983	246	246	200	139	139	108	182	182	150
Turtipar	01.07.1983	222	222	202	130	130	110	170	170	156





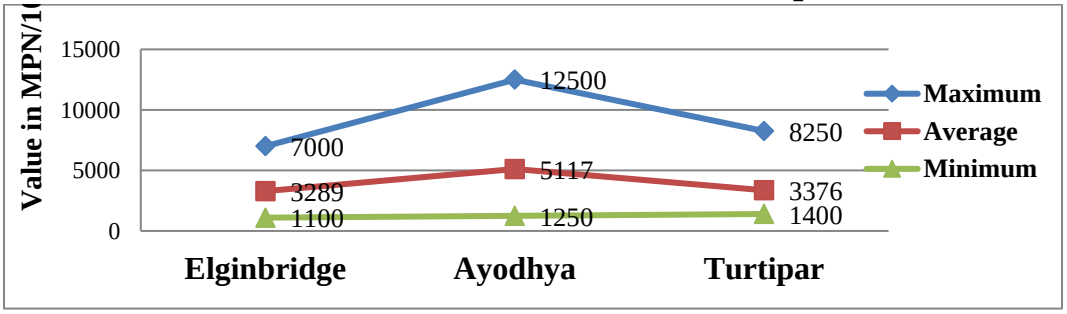


4.1.4 TOTAL COLIFORM IN MPN/100 ML

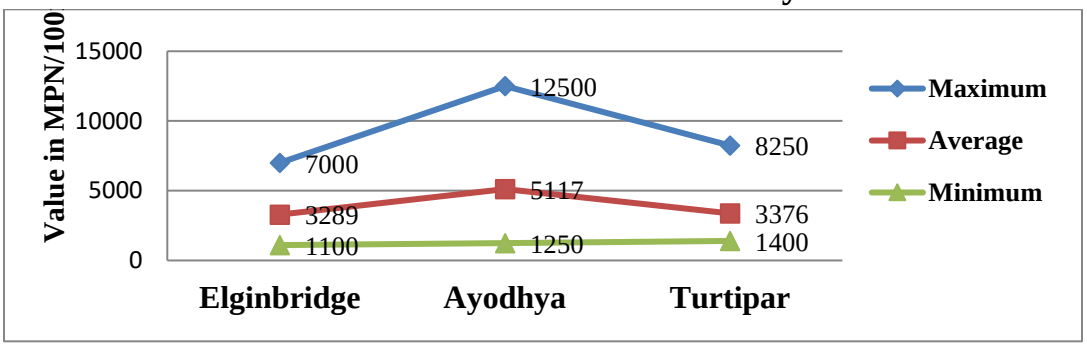
Site Name (From U/S to D/S)	Inception Date	Avg. of Yearly Maximum			Avg. of Yearly Minimum			Annual Average		
		Since inception from	10 year	One year	Since inception from	10 year	One year	Since inception from	10 year	One year
Elginbridge	15.03.1969	7000	7000	6000	1100	1100	600	3289	3289	1817
Ayodhya	01.07.1983	12500	12500	10000	1250	1250	500	5117	5117	2233
Turtipar	01.07.1983	8250	8250	3500	1400	1400	100	3376	3376	1131

*Analysis of total coliform started from 01.08.2016.

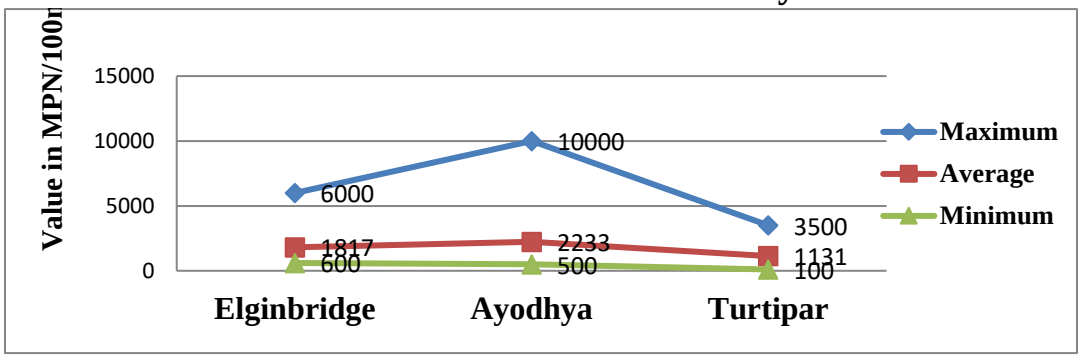
Parameter : Total Coliform since inception



Parameter : Total Coliform last 10 years



Parameter : Total Coliform last 1 year



4.2 River : RAPTI (River 2) : The Rapti's headwaters descent south from rugged highlands populated by Kham Magar. The western tributary Madi Khola rises in northwestern Rolpa and is joined by Lungri Khola draining northeastern Rolpa. The Mardi then crosses into Pyuthan. It is joined by east-flowing Arun Khola at Devithan where it enters a gorge through the Mahabharat Range. Jhimruk Khola east of the Mardi mainly drains Pyuthan. Below the upper highlands, an alluvial valley opens where Bahun and Chhetri rice farmers irrigate paddy fields. At Cherneta, Pyuthan the Jhimruk approaches within 1.5 km of the Mardi. Below Chernetathe Jhimruk loop east, becoming the border between Pyuthan and Arghakhanchi district. Its valley narrows and steepens as it enters the Mahabharat Range. Partway through it joins the Mardi and the combined flow is then named the Rapti.

The Rapti flows to the north of Behraich district. After traversing about 130 km, it enters to the northern portion of the Gonda district. River Rapti is important left bank tributary of river Ghaghra.

At present water quality is being monitored at four stations namely Balrampur, Bansi, Regauli and Birdghat on this river.

W.Q. Network :

S.No.	Name of Site	River	Class
1	Balrampur	Rapti	Trend
2	Bansi *	Rapti	Trend
3	Regauli	Rapti	Trend
4.	Birdghat	Rapti	Flux

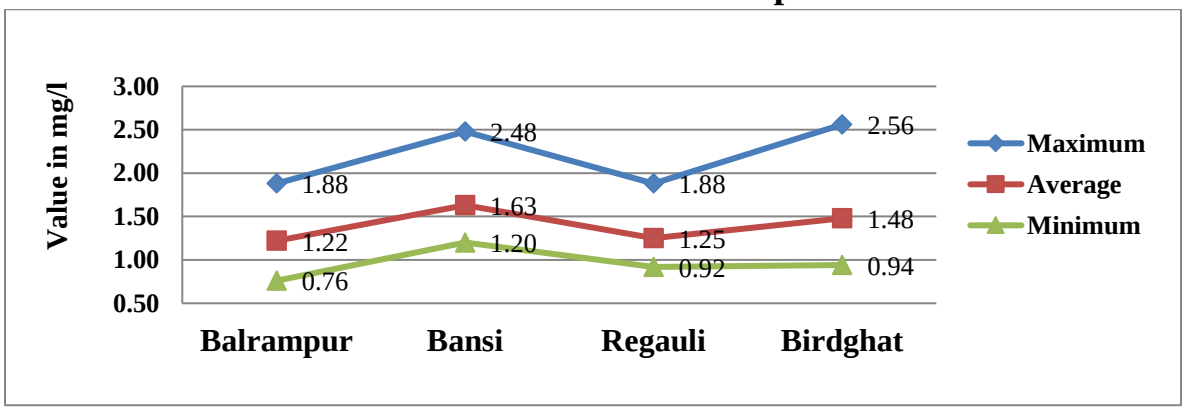
*Bansi site opened on 01/07/2014.

4.2.1 BOD in mg/l

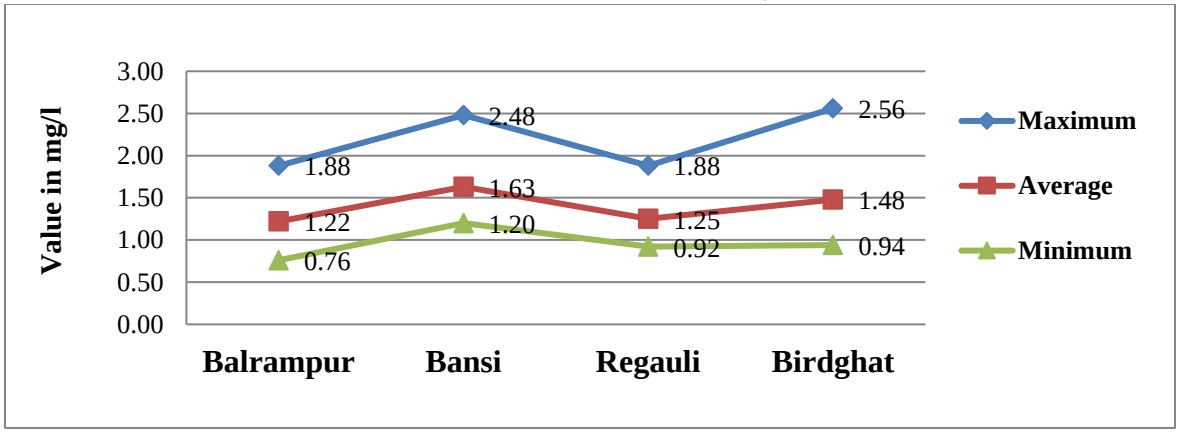
Site Name (From U/S to D/S)	Inception Date	Avg. of Yearly Maximum			Avg. of Yearly Minimum			Annual Average		
		Since inception from	10 year	One year	Since inception from	10 year	One year	Since inception from	10 year	One year
Balrampur	01.11.1980	1.88	1.88	3.90	0.76	0.76	1.20	1.22	1.22	2.40
Bansi*	01.07.2014	2.48	2.48	4.30	1.20	1.20	1.80	1.63	1.63	2.60
Regauli	01.11.1980	1.88	1.88	3.10	0.92	0.92	1.40	1.25	1.25	2.20
Birdghat	01.11.1980	2.56	2.56	7.60	0.94	0.94	1.60	1.48	1.48	2.90

*****Bansi site opened on 01/07/2014**.**

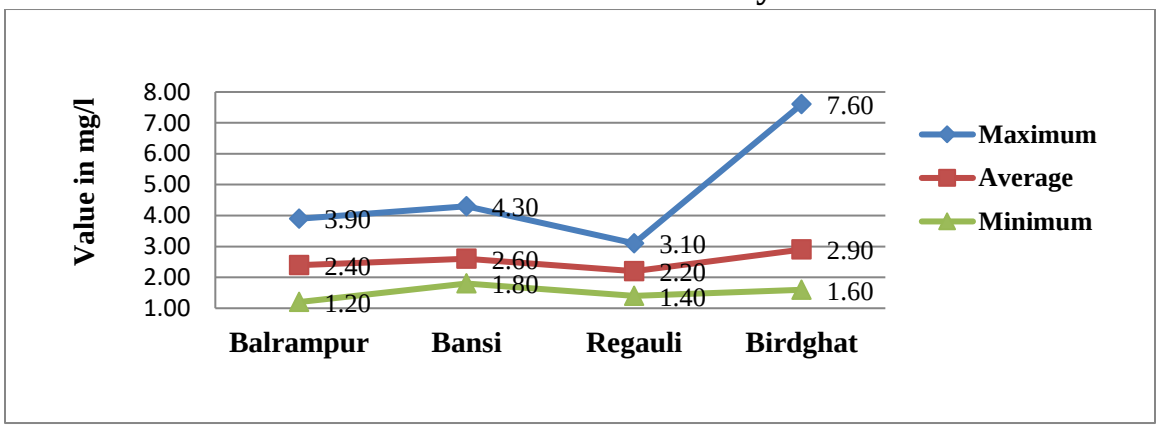
Parameter : BOD since inception



Parameter : BOD last 10 year



Parameter : BOD last one year

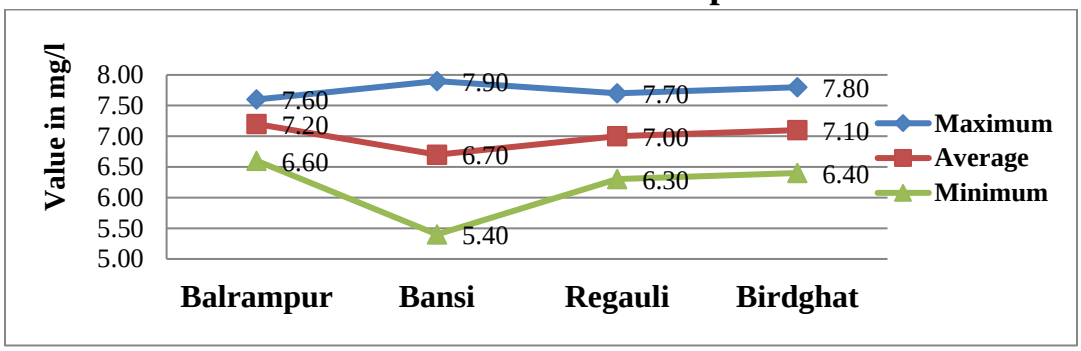


4.2.2 DO in mg/l

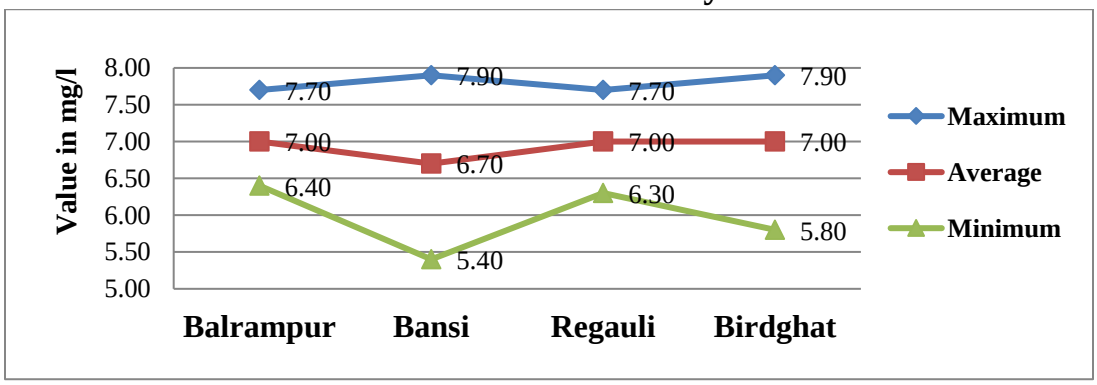
Site Name (From U/S to D/S)	Inception Date	Avg. of Yearly Maximum			Avg. of Yearly Minimum			Annual Average		
		Since inception	10 year	One year	Since inception	10 year	One year	Since inception	10 year	One year
Balrampur	01.11.1980	7.90	7.70	8.60	6.60	6.40	4.70	7.20	7.00	6.40
Bansi*	01.07.2014	7.90	7.90	9.20	5.40	5.40	3.90	6.70	6.70	6.50
Regauli	01.11.1980	7.70	7.70	8.80	6.30	6.30	4.90	7.00	7.00	6.70
Birdghat	01.11.1980	7.80	7.90	7.80	6.40	5.80	2.70	7.10	7.00	5.70

***Bansi site opened on 01/07/2014.**

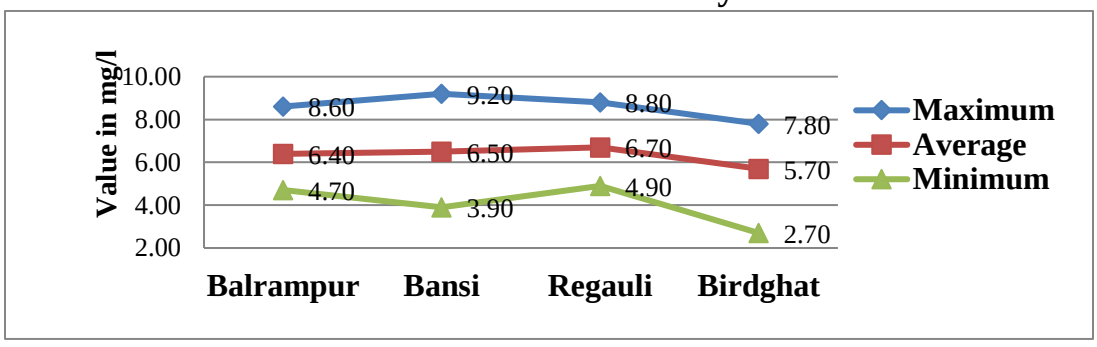
Parameter : DO since inception



Parameter : DO last 10 year



Parameter : DO last one year

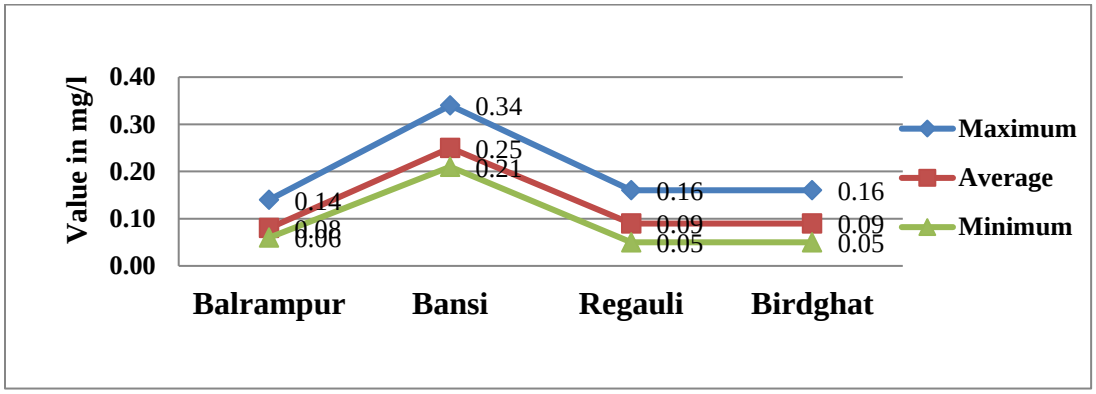


4.2.3 Fluoride in mg/l

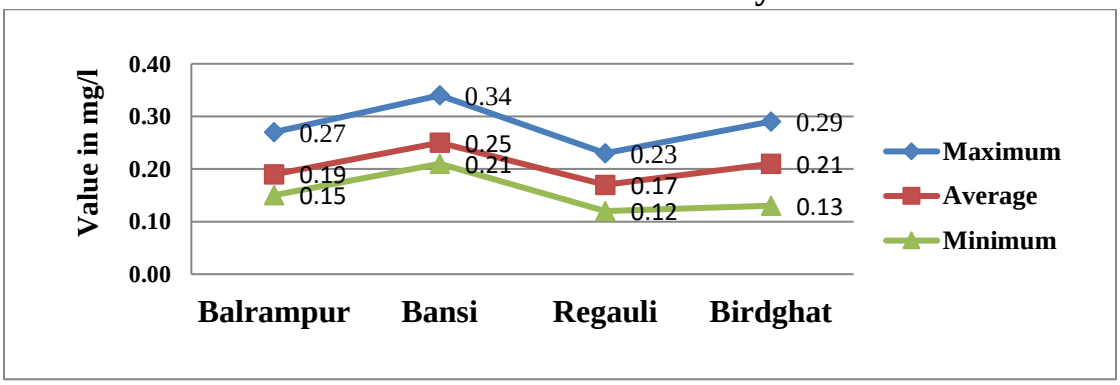
Site Name (From U/S to D/S)	Inception Date	Avg. of Yearly Maximum			Avg. of Yearly Minimum			Annual Average		
		Since inception from	10 year	One year	Since inception from	10 year	One year	Since inception from	10 year	One year
Balrampur	01.11.1980	0.14	0.27	0.50	0.06	0.15	0.16	0.08	0.19	0.23
Bansi*	01.07.2014	0.34	0.34	0.30	0.21	0.21	0.20	0.25	0.25	0.24
Regauli	01.11.1980	0.16	0.23	0.32	0.05	0.12	0.20	0.09	0.17	0.26
Birdghat	01.11.1980	0.16	0.29	0.48	0.05	0.13	0.24	0.09	0.21	0.32

***Bansi site opened on 01/07/2014.**

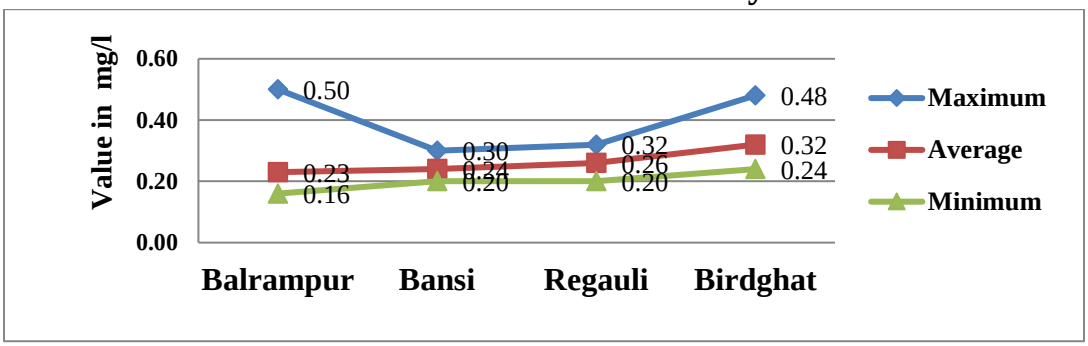
Parameter : Fluoride since inception



Parameter : Fluoride last 10 year



Parameter : Fluoride last one year

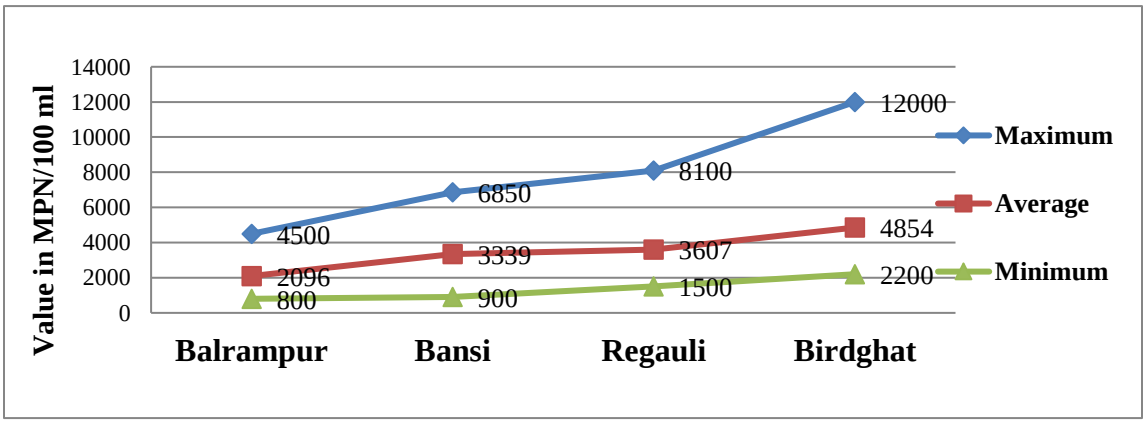


4.2.4 TOTAL COLIFORM IN MPN/100 ML

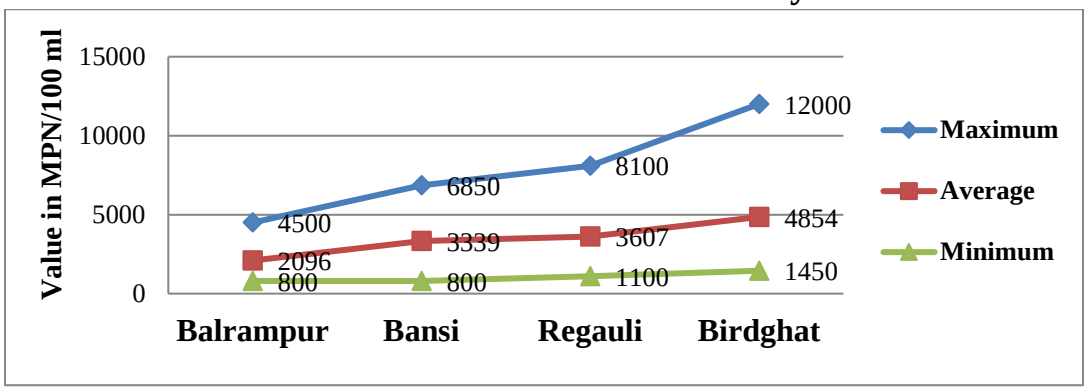
Site Name (From U/S to D/S)	Inception Date	Avg. of Yearly Maximum			Avg. of Yearly Minimum			Annual Average		
		Since inception from	10 year	One year	Since inception from	10 year	One year	Since inception from	10 year	One year
Balrampur	01.08.2016	4500	4500	400	800	800	700	2096	2096	1792
Bansi*	01.08.2016	6850	6850	2700	800	800	700	3339	3339	1467
Regauli	01.08.2016	8100	8100	7200	1100	1100	700	3607	3607	2383
Birdghat	01.08.2016	12000	12000	8000	1450	1450	700	4854	4854	2517

*Analysis of total coliform started from 01.08.2016.

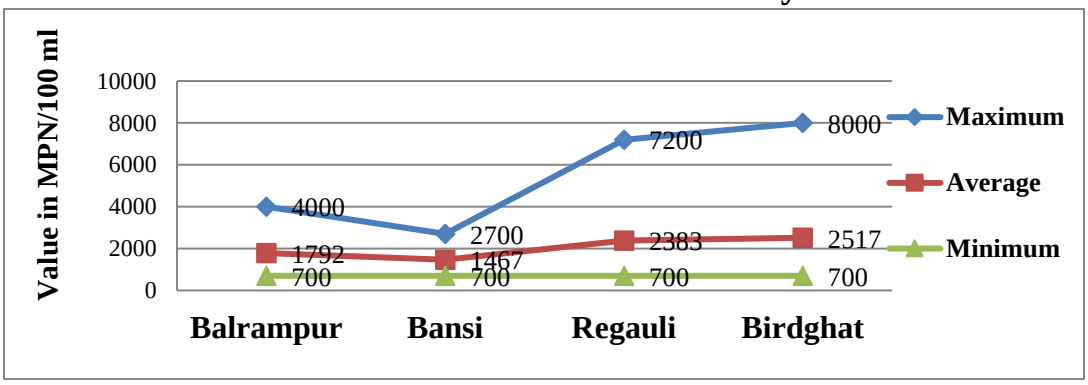
Parameter : Total Coliform since inception



Parameter : Total Coliform last 10 year



Parameter : Total Coliform last 1 year

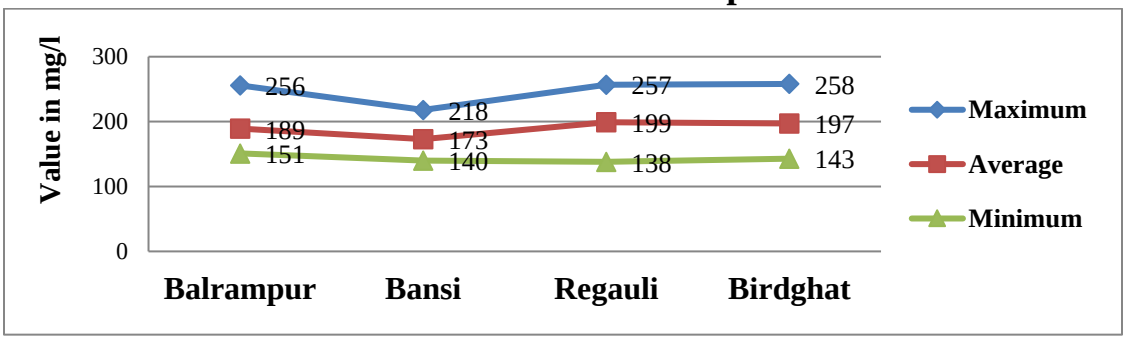


4.2.5 TDS in mg/l

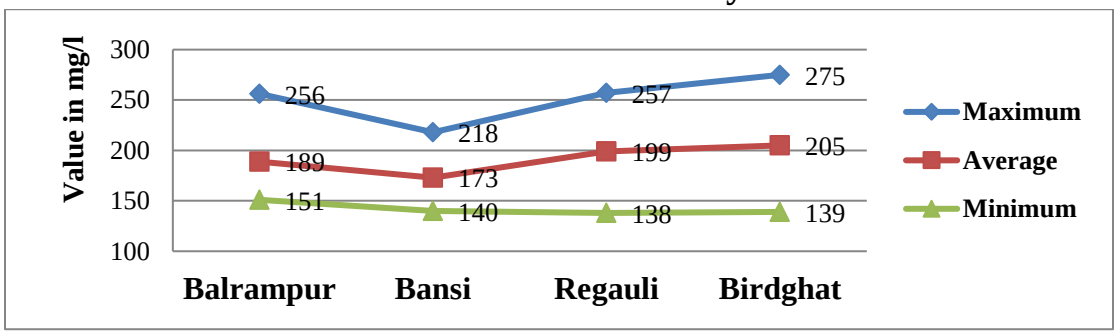
Site Name (From U/S to D/S)	Inception Date	Avg. of Yearly Maximum			Avg. of Yearly Minimum			Annual Average		
		Since inception from	10 year	One year	Since inception from	10 year	One year	Since inception from	10 year	One year
Balrampur	01.11.1980	256	256	169	151	151	140	189	189	155
Bansi*	01.07.2014	218	218	220	140	140	145	173	173	175
Regauli	01.11.1980	257	257	230	138	138	110	199	199	183
Birdghat	01.11.1980	258	275	261	143	139	120	197	205	195

*Bansi site opened on 01/07/2014.

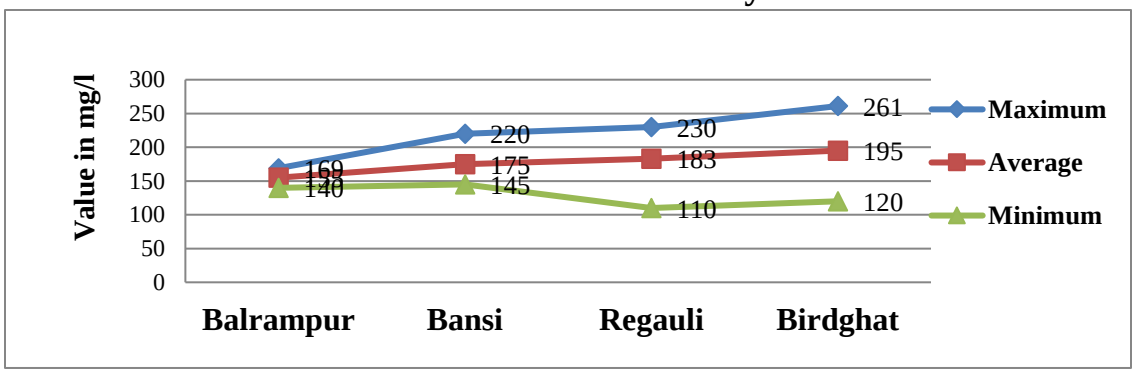
Parameter : TDS since inception



Parameter : TDS last 10 year



Parameter : TDS last one year



4.3 River : SHARDA (River 3) : The river Sharda is known as river Maha Kali in origin. The traditional source of the Maha Kali is Lipmpiya Dhura in Pithoragarh district Uttarakhand. The geographic sources, however, are some five kms further north and some thousand meters higher streams emerging from glacier along the watershed. India's border with China's Tibet Autonomous Region follows this watershed. The Kali receives the right bank Dhauliganga. It passes a town Dharchula and receives the Gori Ganga at Jauljibi, exiting the high mountains that reach into alpine zone. The first important left bank tributary from Nepal, the Chameliya joins after flowing southwest from Nepal's Gurans Himal. A bazaar town Jhulaghat is on both sides of the river. Then the Kali receives the Sarju river.

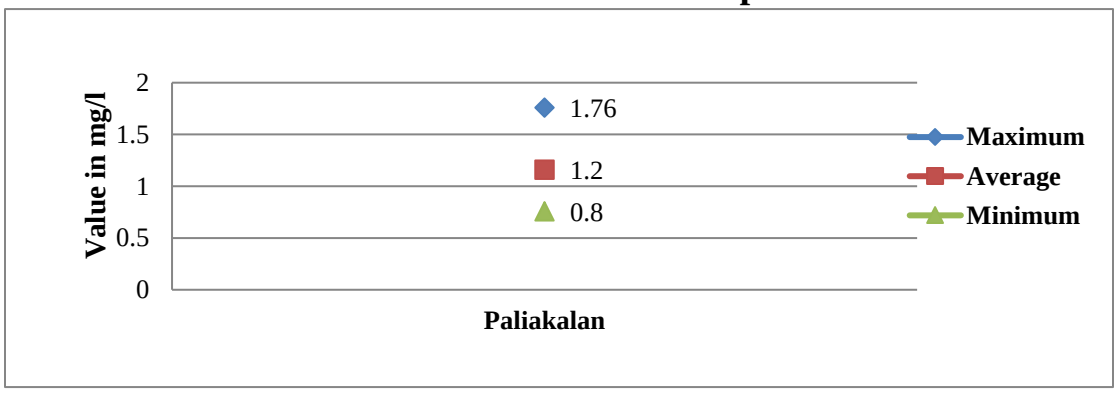
The Kali exits hill region at Jogbudha Valley and receives two tributaries Ladhiya and Ramgun, then it enters the lower Siwalik hills. Tanakpur town is just above dam of Sharda Reservoir where water is diverted into an irrigation canal. The river exit the last hills into the Terai plains, passing town Banbasa and Mahendranagar. The international boder then turns west of the river to follow a previous channel for some 10 km. here the river leaves Uttarakhand and crosses into Uttar Pradesh. Now the river's name changes to Sharda.

W.Q. Network :Water quality is being monitored on river Sharda at Paliakalan only.

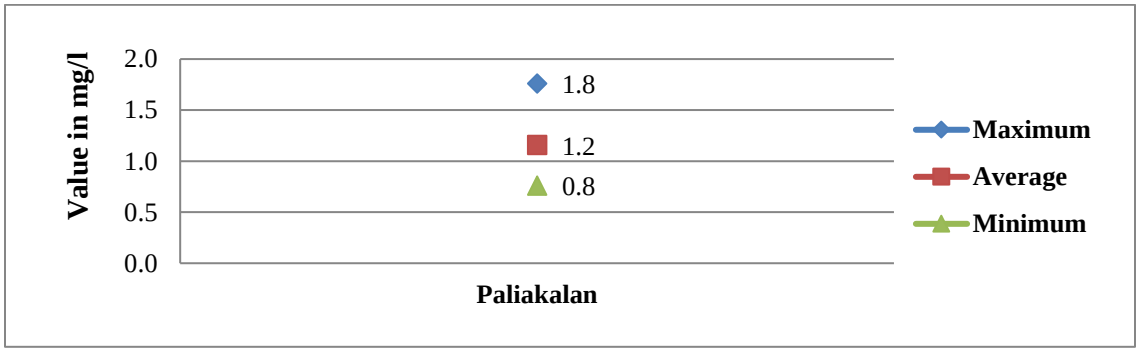
4.3.1 BOD in mg/l

Site Name (From U/S to D/S)	Inception Date	Avg. of Yearly Maximum			Avg. of Yearly Minimum			Annual Average		
		Since inception	10 year	One year	Since inception	10 year	One year	Since inception	10 year	One year
Paliakalan	01.01.1969	1.76	1.76	2.90	0.76	0.76	0.08	1.16	1.16	1.80

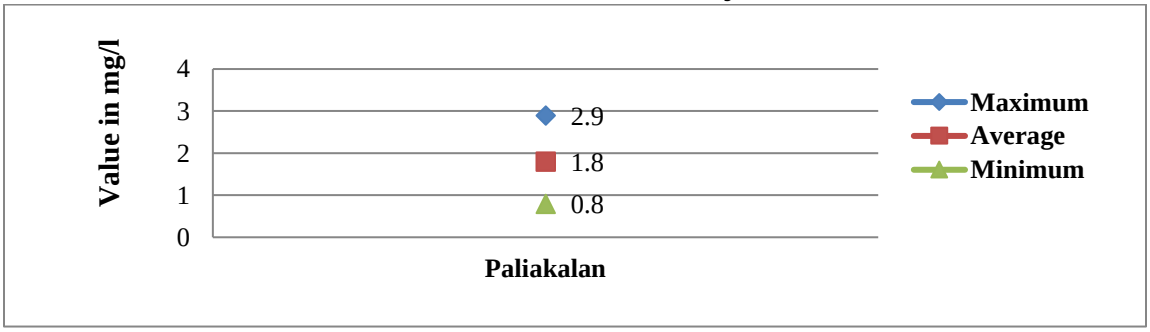
Parameter : BOD since inception



Parameter : BOD 10 Year



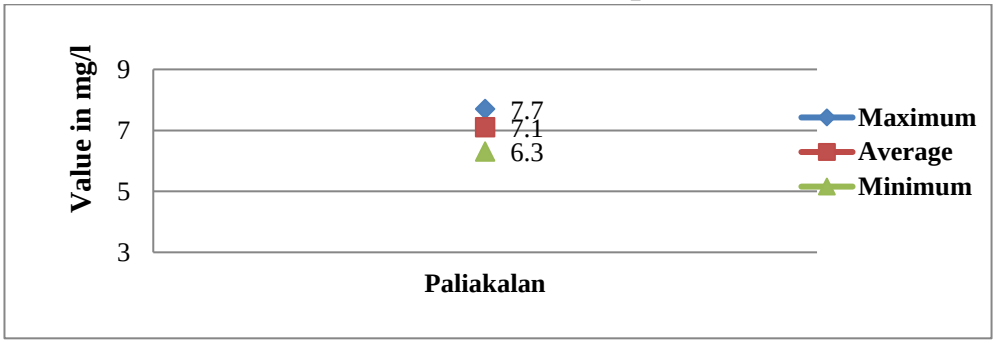
Parameter : BOD One year



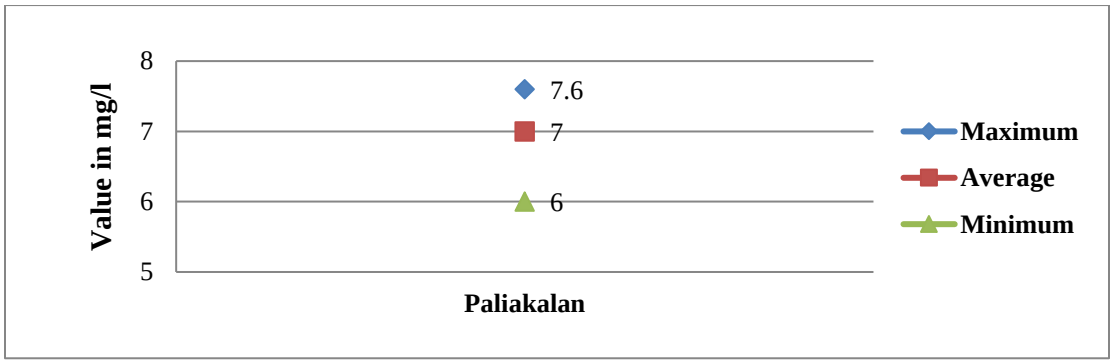
4.3.2 DO in mg/l

Site Name (From U/S to D/S)	Inception Date	Avg. of Yearly Maximum			Avg. of Yearly Minimum			Annual Average		
		Since inception from	10 year	One year	Since inception from	10 year	One year	Since inception from	10 year	One year
Paliakalan	01.01.1969	7.70	7.60	8.60	6.30	6.00	3.30	7.10	7.00	6.60

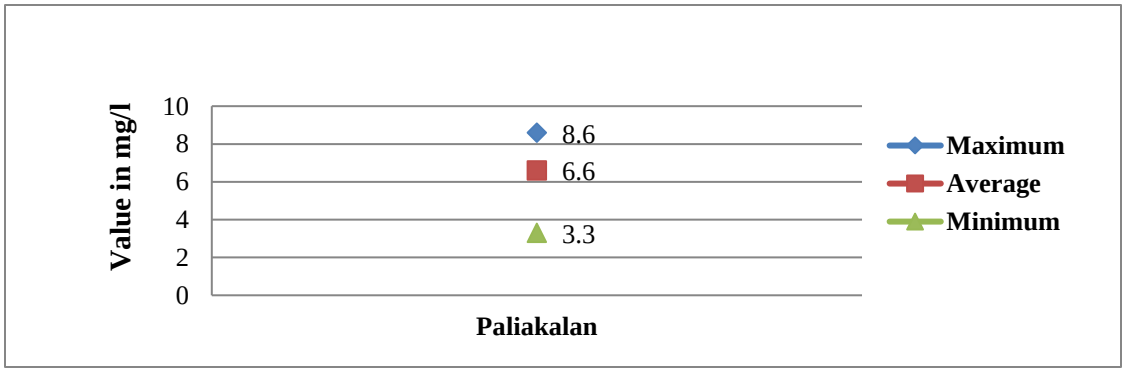
Parameter : DO since inception



Parameter : DO 10 Year



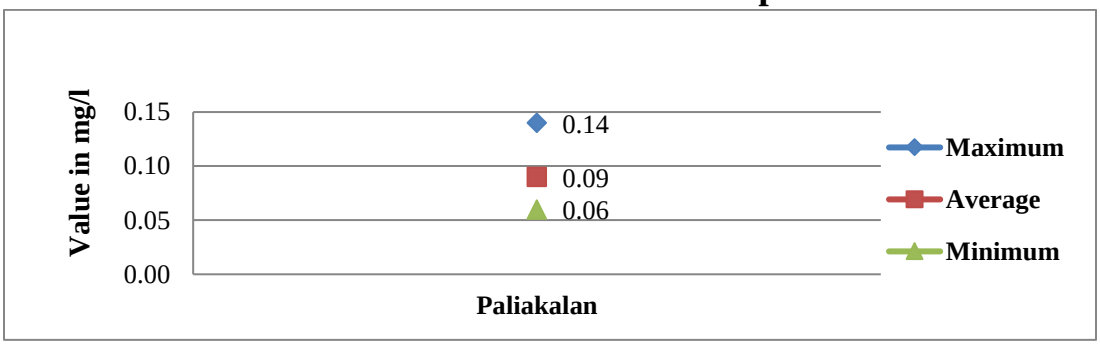
Parameter : Fluoride One Year



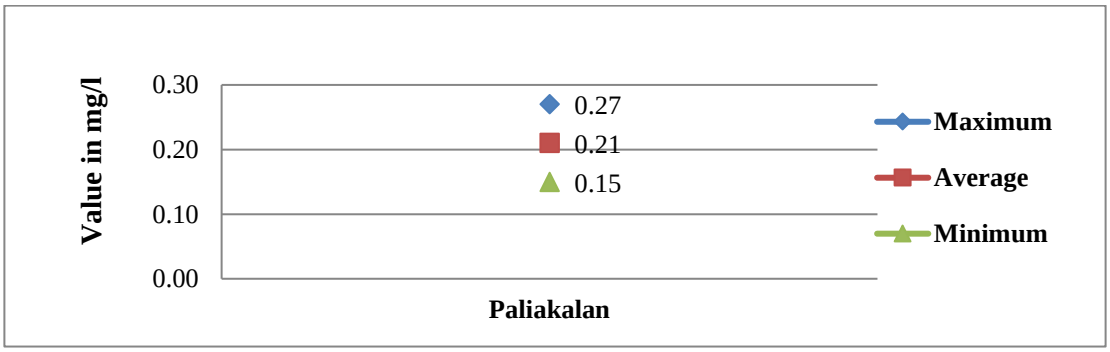
4.3.3 Fluoride in mg/l

Site Name (From U/S to D/S)	Inception Date	Avg. of Yearly Maximum			Avg. of Yearly Minimum			Annual Average		
		Since inception	10 year	One year	Since inception	10 year	One year	Since inception	10 year	One year
Paliakalan	01.01.1969	0.14	0.27	0.36	0.06	0.15	0.26	0.09	0.21	0.30

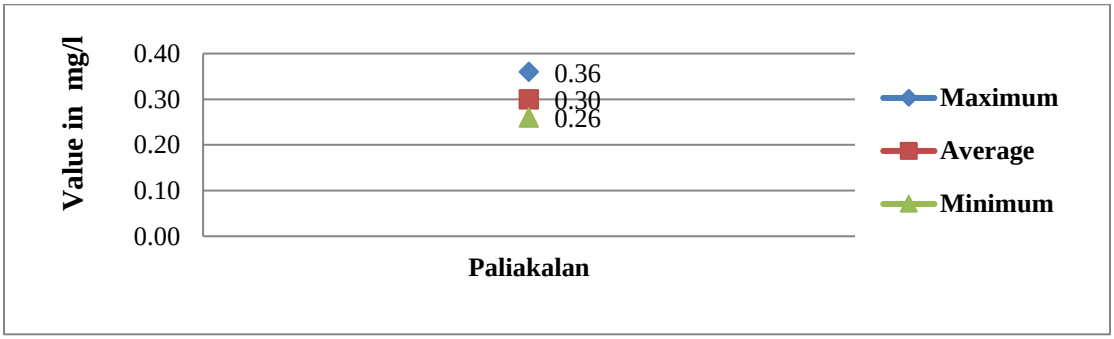
Parameter : Fluoride since inception



Parameter : Fluoride 10 Year

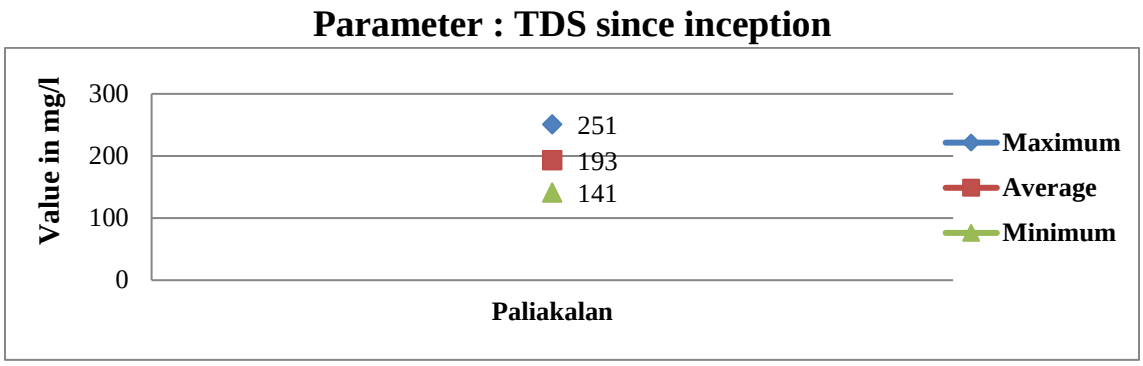


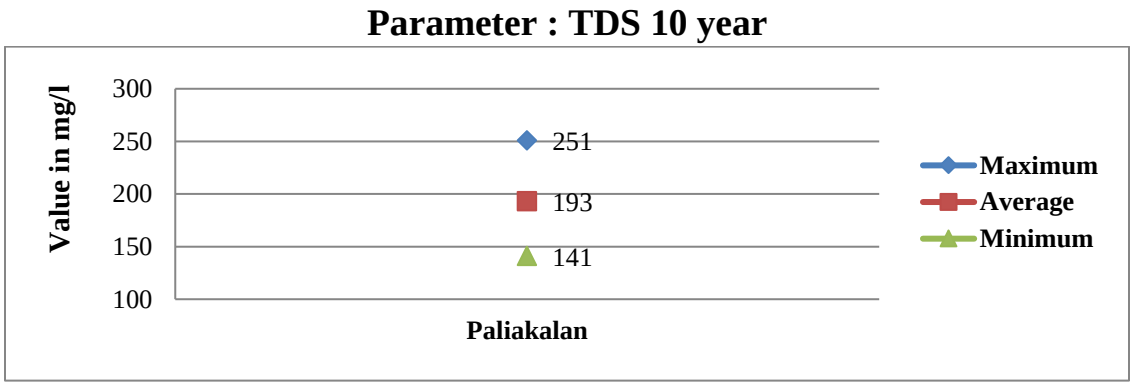
Parameter : Fluoride One Year

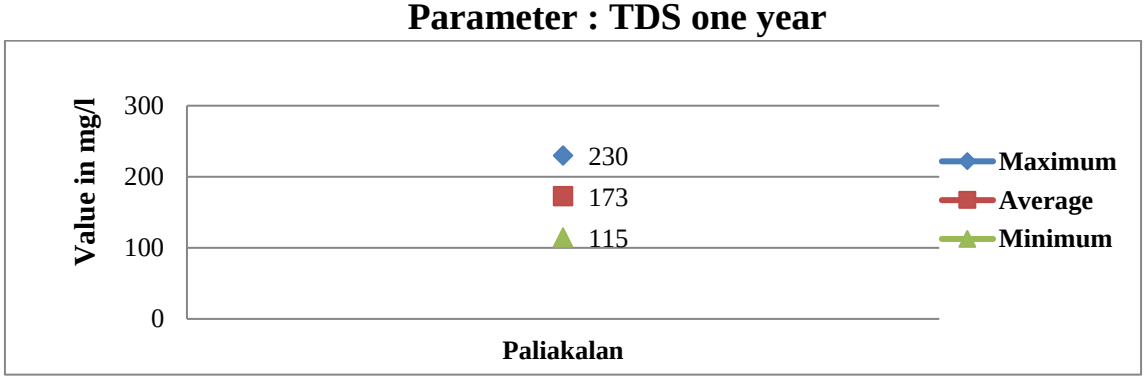


4.3.4 TDS in mg/l

Site Name (From U/S to D/S)	Inception Date	Avg. of Yearly Maximum			Avg. of Yearly Minimum			Annual Average		
		Since inception	10 year	One year	Since inception	10 year	One year	Since inception	10 year	One year
Paliakalan	01.01.1969	251	251	230	141	141	115	193	193	173

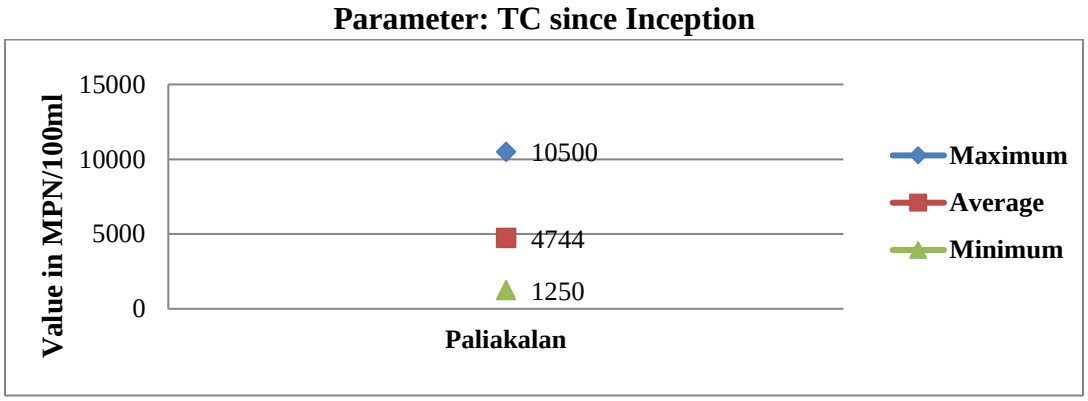


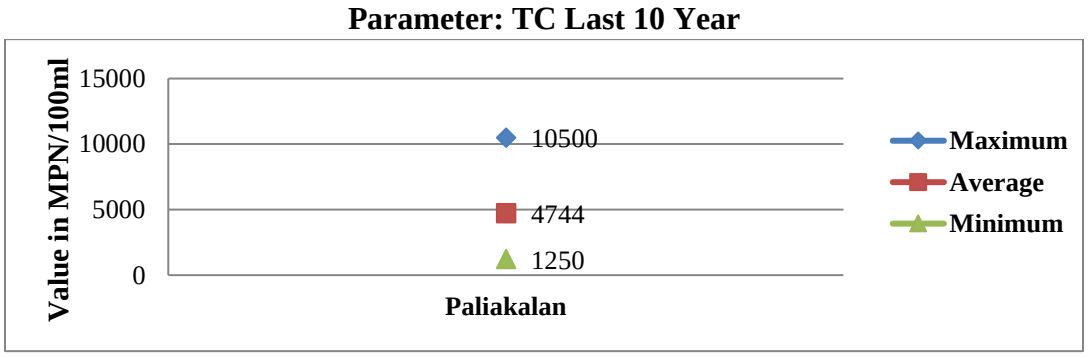


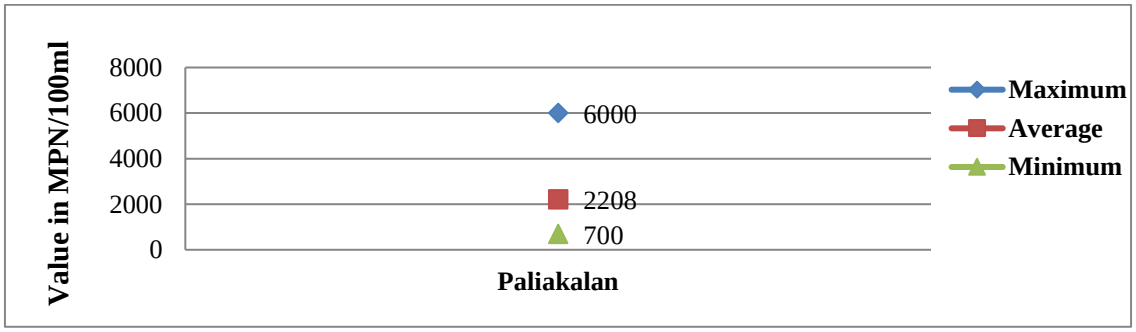


4.3.5 TC in MPN/100 ml

Site Name (From U/S to D/S)	Inception Date	Avg. of Yearly Maximum			Avg. of Yearly Minimum			Annual Average		
		Since inception	10 year	One year	Since inception	10 year	One year	Since inception	10 year	One year
Paliakalan	01.08.2016	10500	10500	6000	1250	1250	700	4744	4744	2208







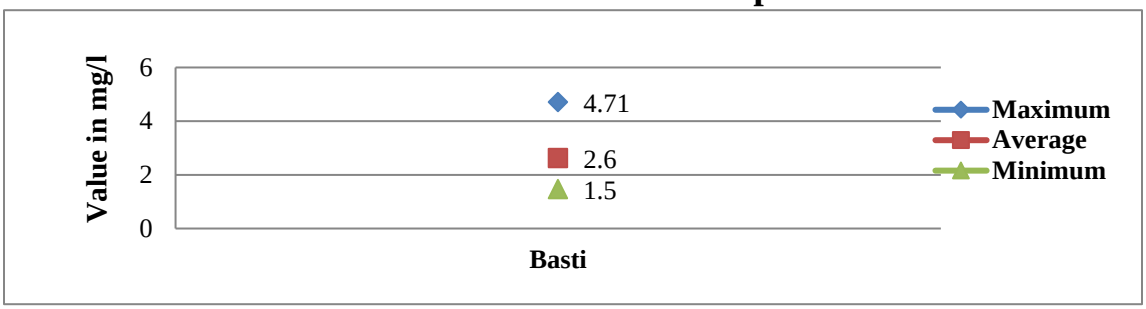
4.4 River : Kwano (River 4) : The river Kwano is a rain fed river and originates from Kwano hills in the district Bahraich of Uttar Pradesh. It passes though Gonda, Basti and Sant Kabir Nagar district. It joins Ghaghra near the place Raunapur in the midway of the boundary of districts Azamgarh and Sant Kabir Nagar.

W.Q. Network : Water quality is being monitored on river Kwano at Basti.

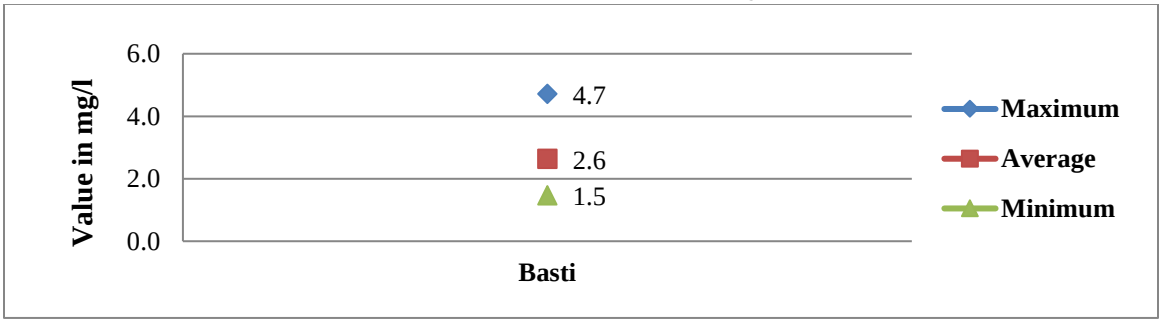
4.4.1 BOD in mg/l

Site Name (From U/S to D/S)	Inception Date	Avg. of Yearly Maximum			Avg. of Yearly Minimum			Annual Average		
		Since inception	10 year	One year	Since inception	10 year	One year	Since inception	10 year	One year
Basti	01.11.1980	4.71	4.71	13.70	1.47	1.47	1.40	2.63	2.63	7.55

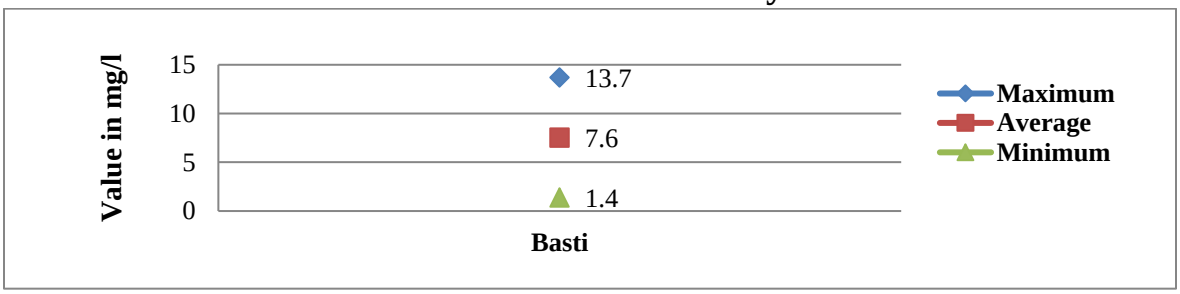
Parameter : BOD since inception



Parameter : BOD last 10 year



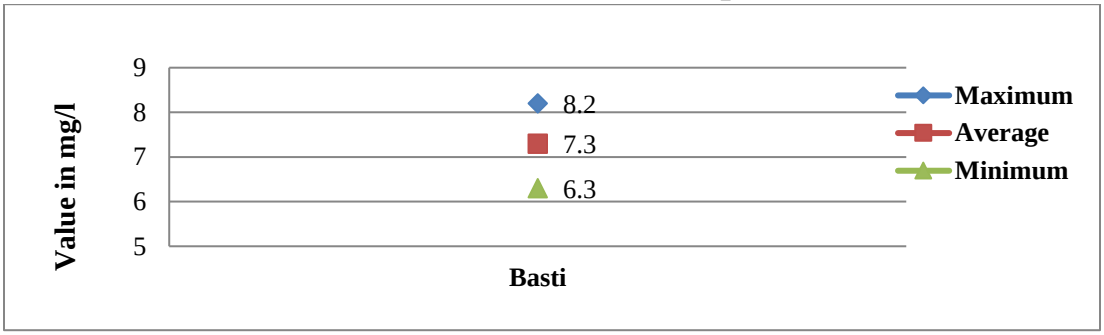
Parameter : BOD last one year



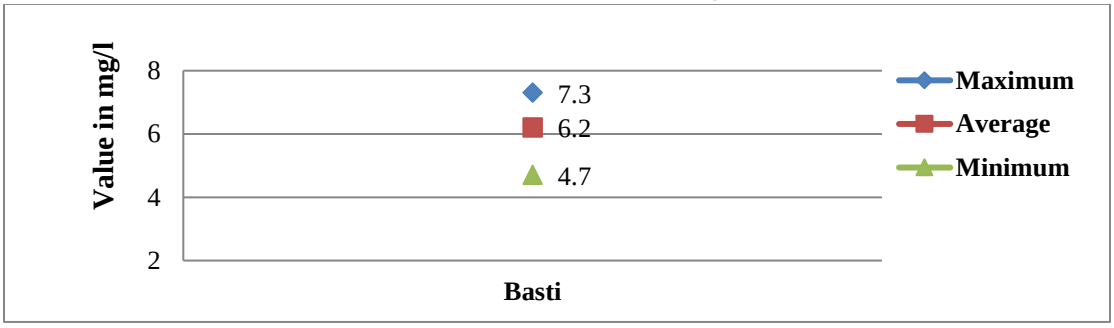
4.4.2 DO in mg/l

Site Name (From U/S to D/S)	Inception Date	Avg. of Yearly Maximum			Avg. of Yearly Minimum			Annual Average		
		Since inception	10 year	One year	Since inception	10 year	One year	Since inception	10 year	One year
Basti	01.11.1980	8.20	7.30	7.80	6.30	4.70	2.00	7.30	6.20	4.90

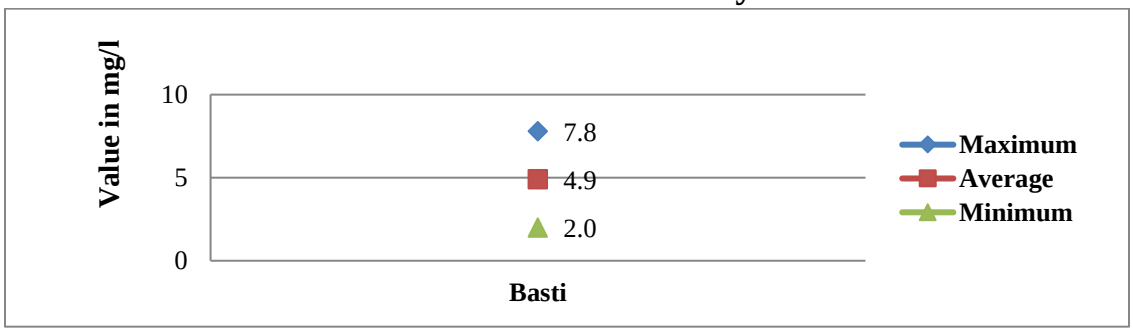
Parameter : DO since inception



Parameter : DO last 10 year



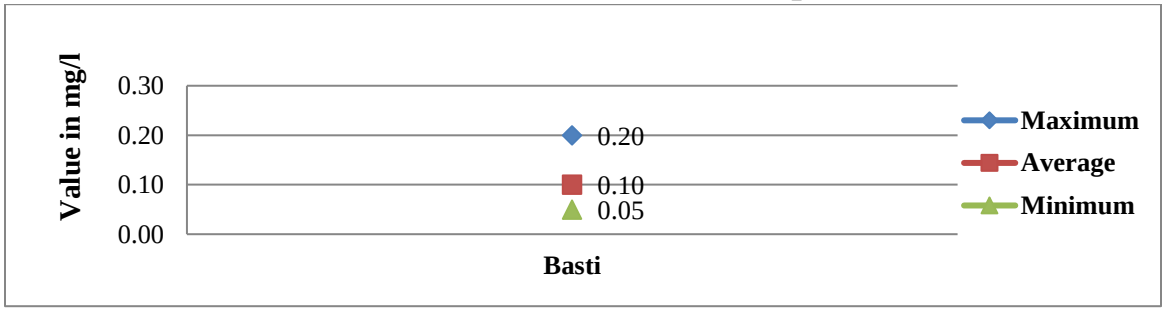
Parameter : DO last one year



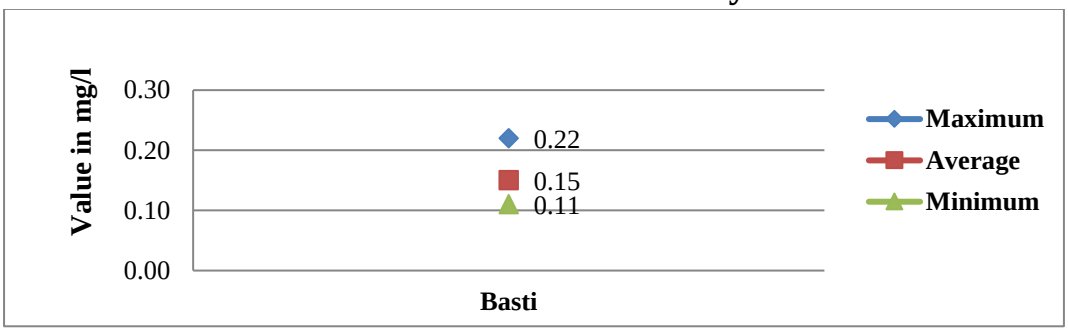
4.4.3 Fluoride in mg/l

Site Name (From U/S to D/S)	Inception Date	Avg. of Yearly Maximum			Avg. of Yearly Minimum			Annual Average		
		Since inception	10 year	One year	Since inception	10 year	One year	Since inception	10 year	One year
Basti	01.11.1980	0.20	0.22	0.42	0.05	0.11	0.20	0.10	0.15	0.29

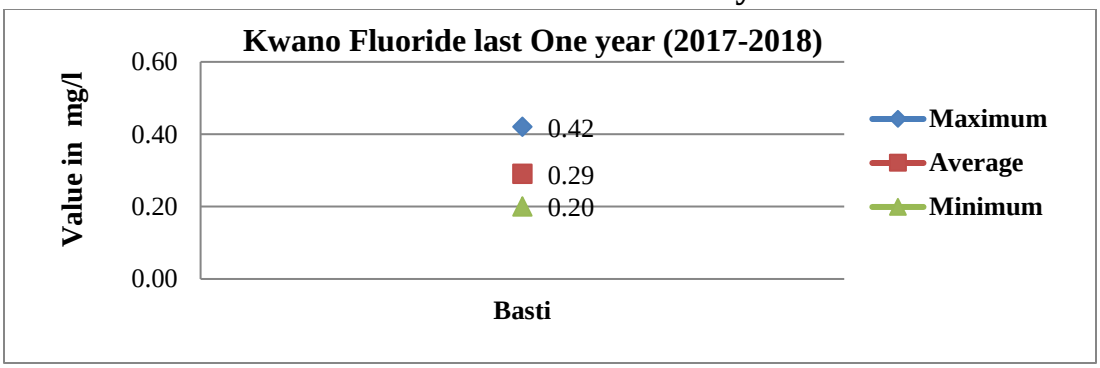
Parameter : Fluoride since inception



Parameter : Fluoride last 10 year



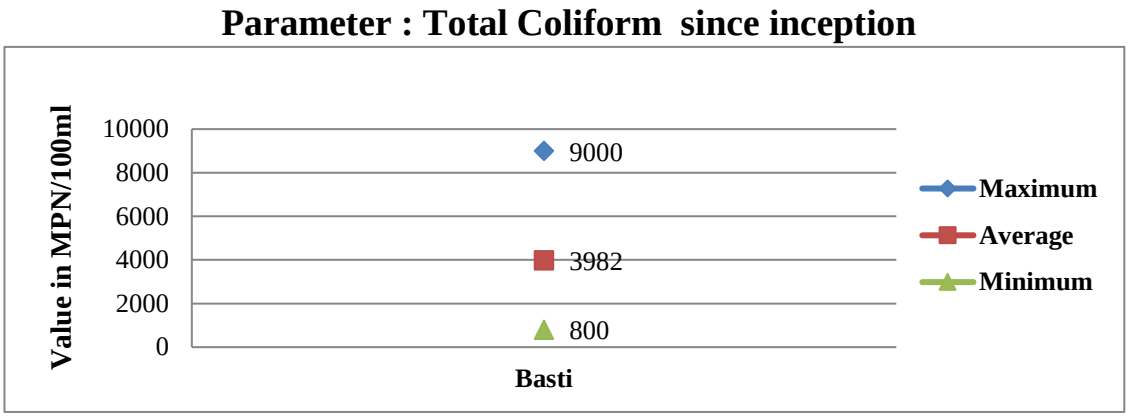
Parameter : Fluoride last 1 year

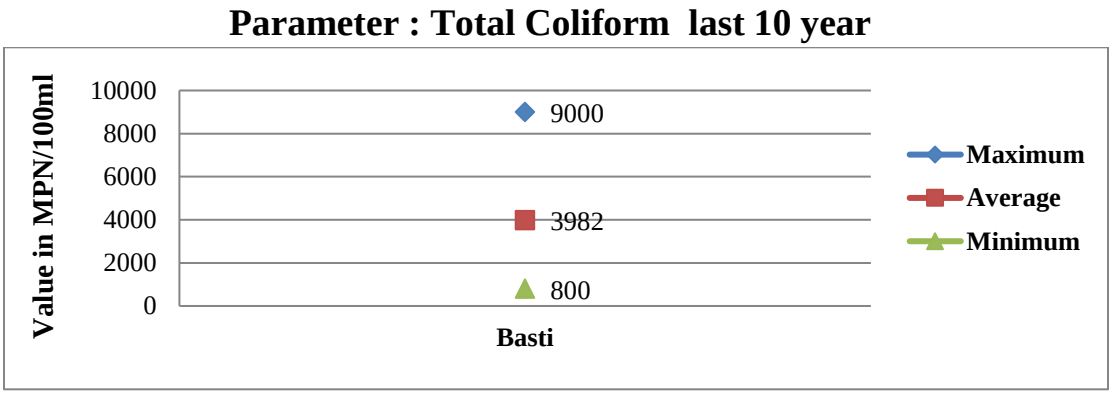


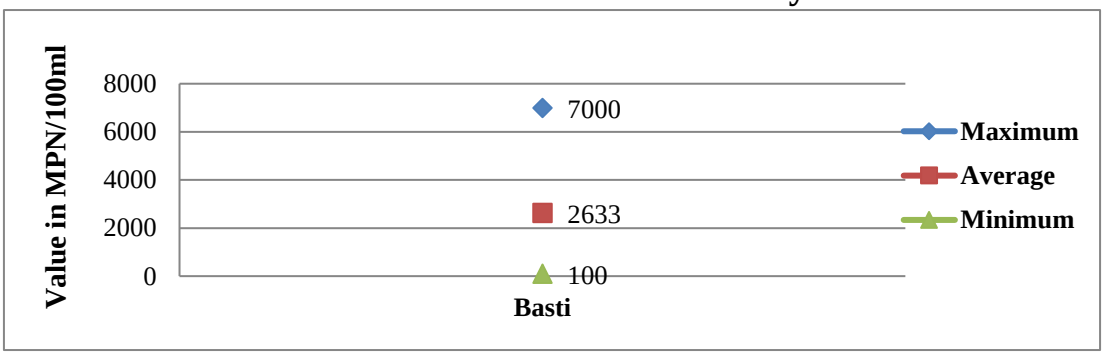
4.4.4 TOTAL COLIFORM IN MPN/100 ML

Site Name (From U/S to D/S)	Inception Date	Avg. of Yearly Maximum			Avg. of Yearly Minimum			Annual Average		
		Since inception	10 year	One year	Since inception	10 year	One year	Since inception	10 year	One year
Basti*	01.11.1980	9000	9000	7000	800	800	100	3982	3982	2633

*Analysis of total coliform started from 01.08.2016.



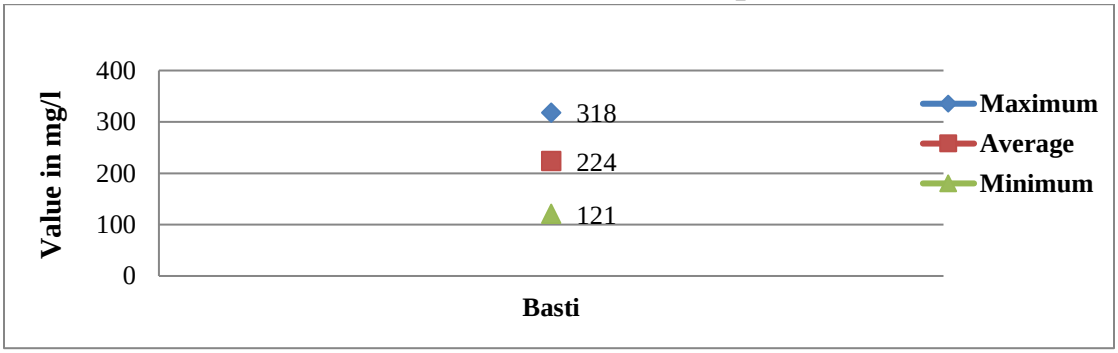




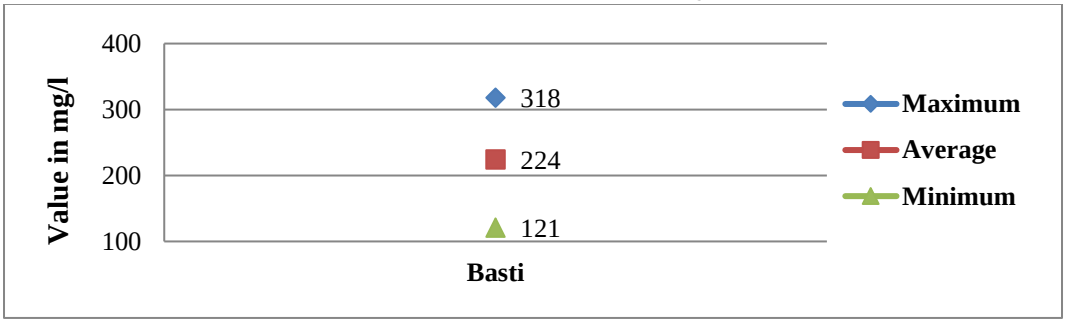
4.4.5 TDS in mg/l

Site Name (From U/S to D/S)	Inception Date	Avg. of Yearly Maximum			Avg. of Yearly Minimum			Annual Average		
		Since inception	10 year	One year	Since inception	10 year	One year	Since inception	10 year	One year
Basti	01.11.1980	318	318	277	121	121	108	224	224	193

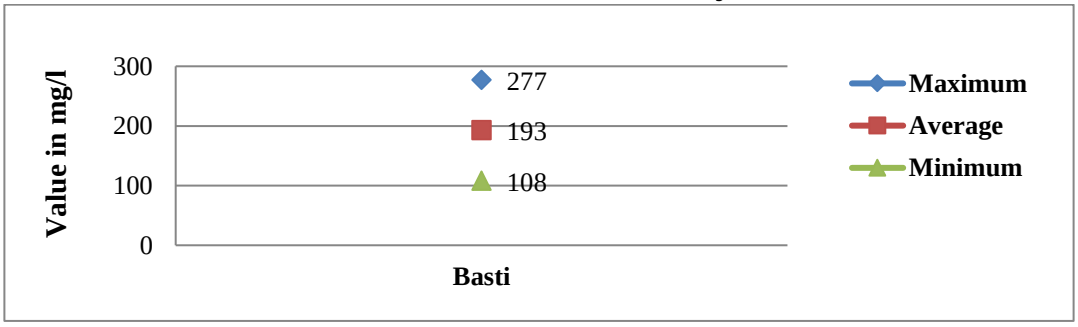
Parameter : TDS since inception



Parameter : TDS last 10 year



Parameter : TDS last one year



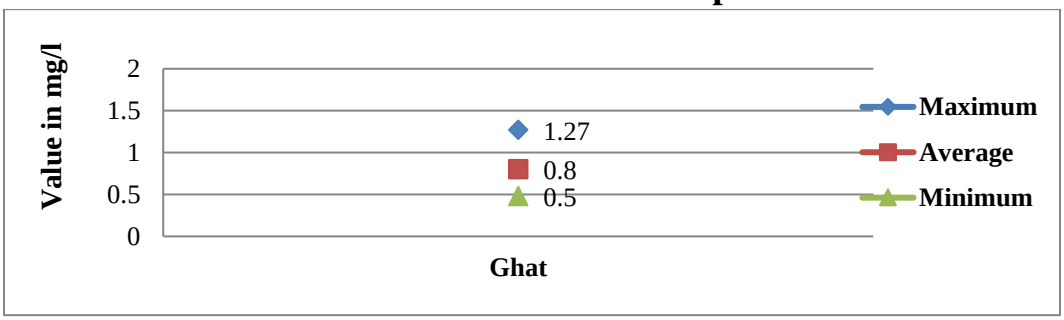
4.5 River : Sarju (River 5) : Originating from the extreme south of adjacent Almora district, the sarju makes south west boundary between Pithoragarh and Almora. Ramganga East river joins Sarju at Rameshwar near Ghat of Pithoragarh. Finally, at a point at Pancheswar, it joins Kali (Sharda) alongwith Panar river.

W.Q. Network : Water quality is being monitored on river Sarju at Ghat.

4.5.1 BOD in mg/l

Site Name (From U/S to D/S)	Inception Date	Avg. of Yearly Maximum			Avg. of Yearly Minimum			Annual Average		
		Since inception	10 year	One year	Since inception	10 year	One year	Since inception	10 year	One year
Ghat	01.06.2006	1.27	1.27	3.20	0.48	0.48	0.80	0.80	0.80	1.50

Parameter : BOD since inception

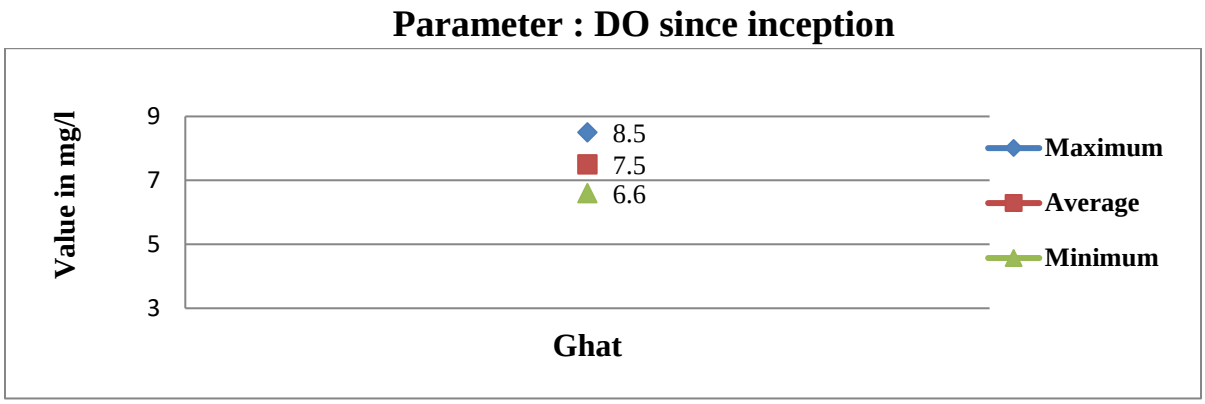


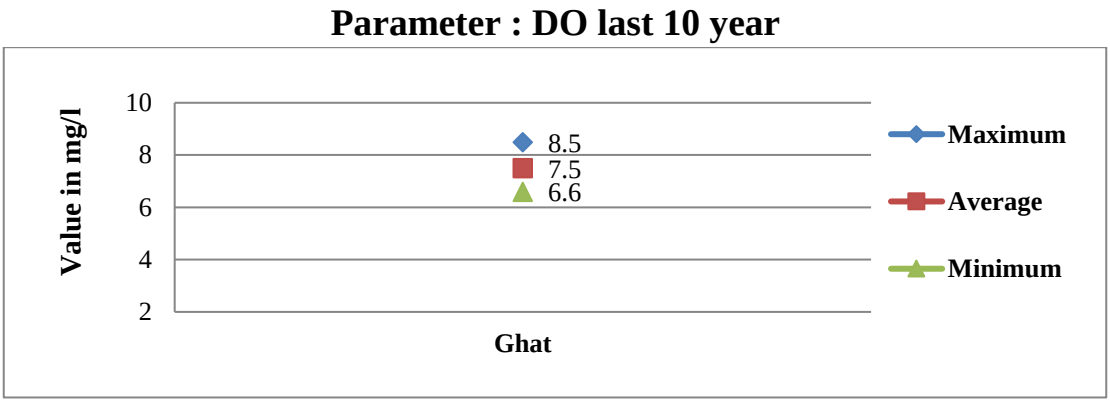
Parameter : BOD last 10 year

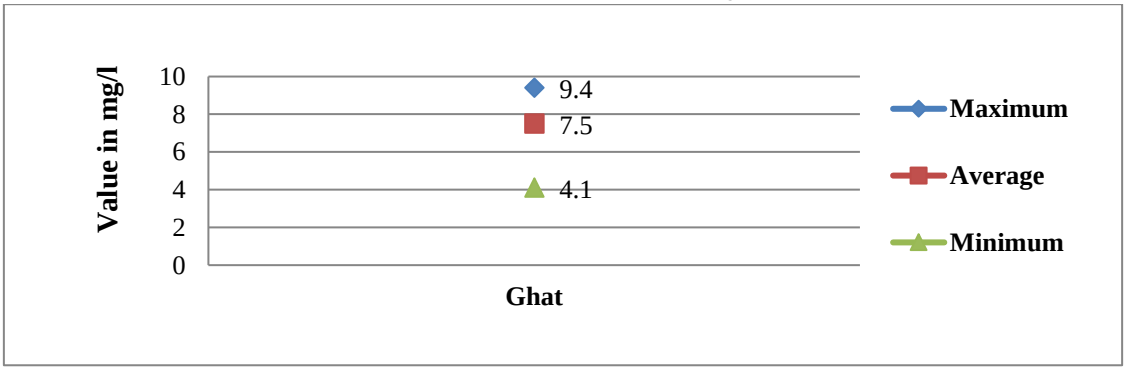
Parameter : BOD last one year

4.5.2 DO in mg/l

Site Name (From U/S to D/S)	Inception Date	Avg. of Yearly Maximum			Avg. of Yearly Minimum			Annual Average		
		Since inception	10 year	One year	Since inception	10 year	One year	Since inception	10 year	One year
Ghat	01.06.2006	8.50	8.50	9.40	6.60	6.60	4.10	7.50	7.50	7.50



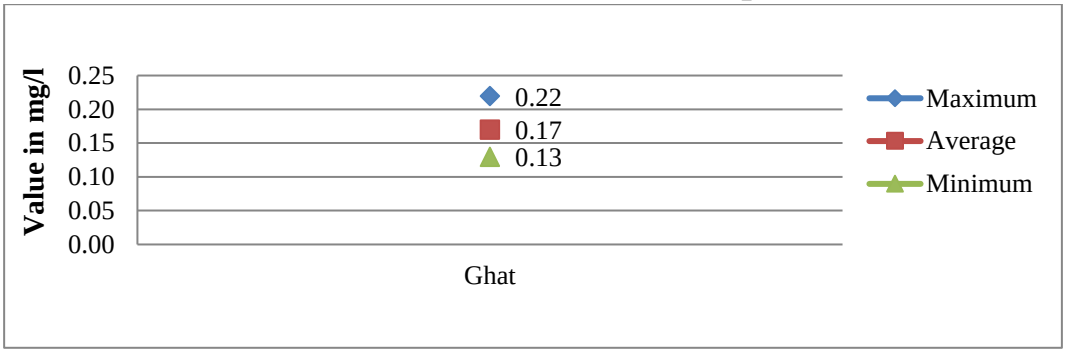




4.5.3 Fluoride in mg/l

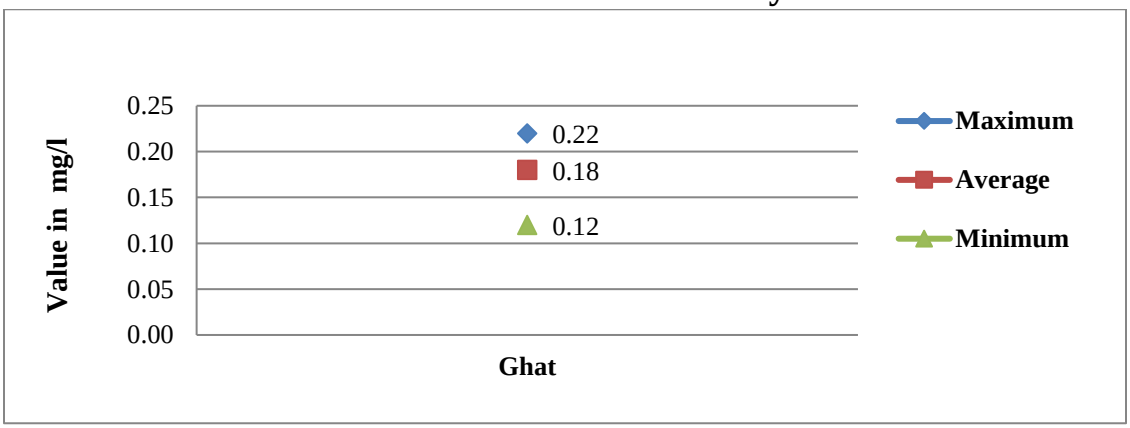
Site Name (From U/S to D/S)	Inception Date	Avg. of Yearly Maximum			Avg. of Yearly Minimum			Annual Average		
		Since inception	10 year	One year	Since inception	10 year	One year	Since inception	10 year	One year
Ghat	01.06.2006	0.22	0.22	0.22	0.13	0.13	0.12	0.17	0.17	0.18

Parameter : Fluoride since inception



Parameter : Fluoride last 10 year

Parameter : Fluoride last one year

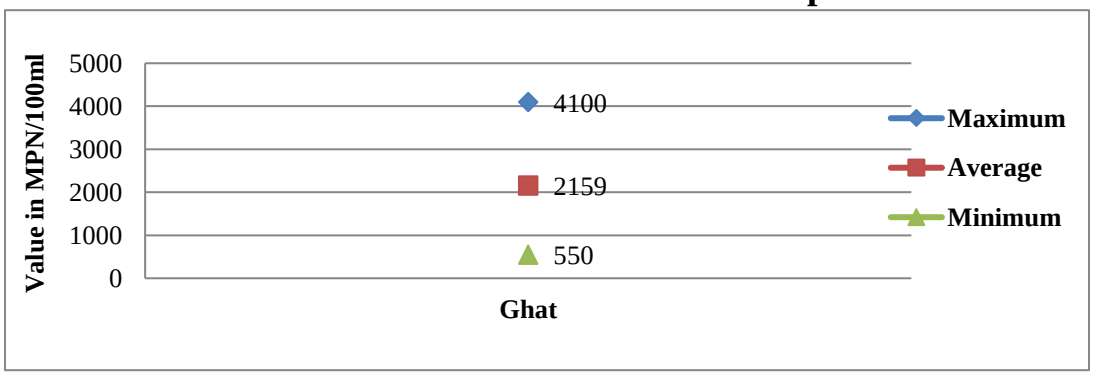


4.5.4 TOTAL COLIFORM IN MPN/100 ML

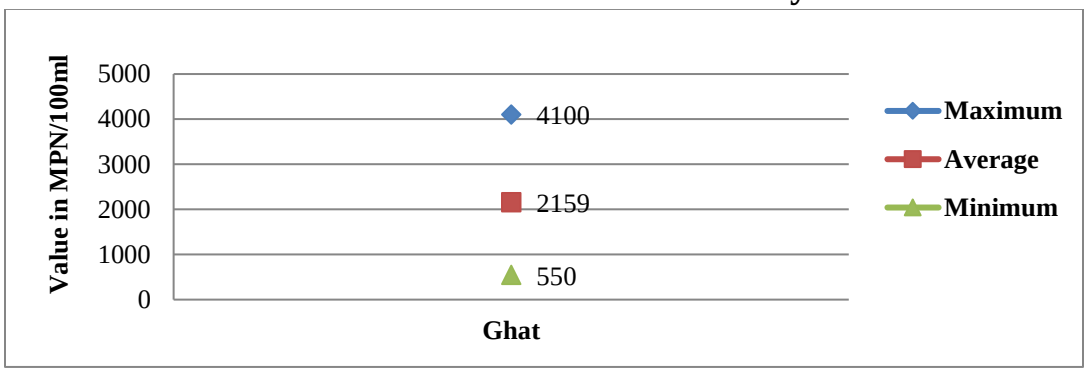
Site Name (From U/S to D/S)	Inception Date	Avg. of Yearly Maximum			Avg. of Yearly Minimum			Annual Average		
		Since inception	10 year	One year	Since inception	10 year	One year	Since inception	10 year	One year
Ghat	01.06.2006	4100	4100	3200	550	550	400	2159	2159	1800

*Analysis of total coliform started from 01.08.2016.

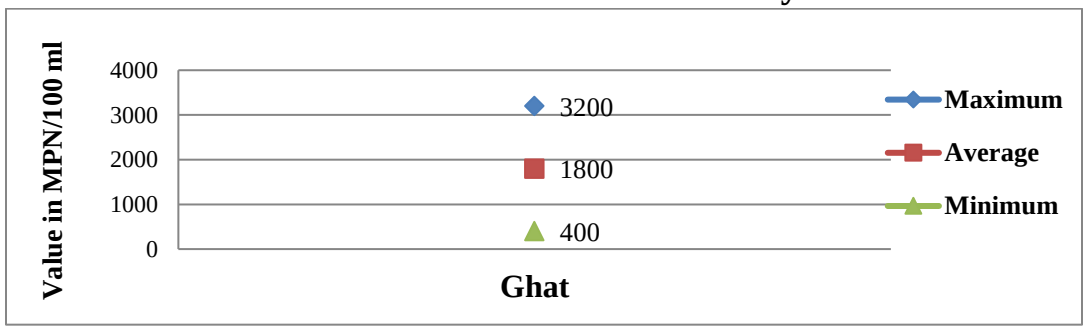
Parameter : Total Coliform since inception



Parameter : Total Coliform last 10 year



Parameter : Total Coliform last 1 year

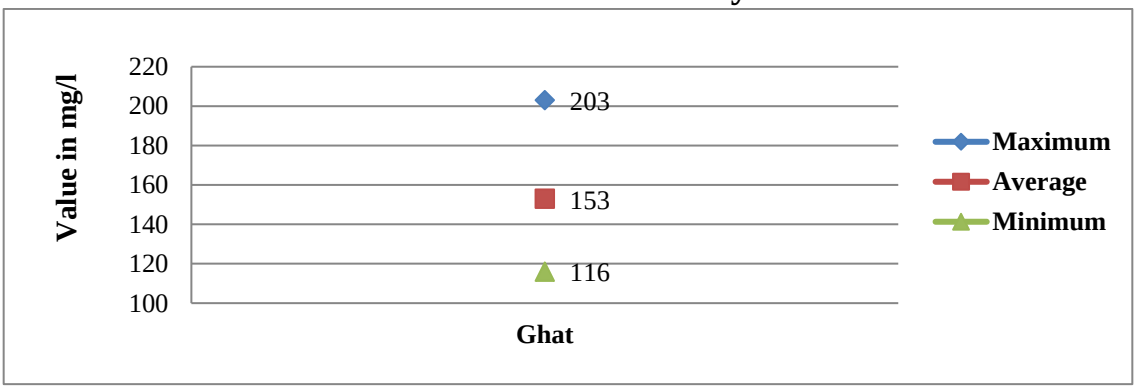


4.5.5 TDS in mg/l

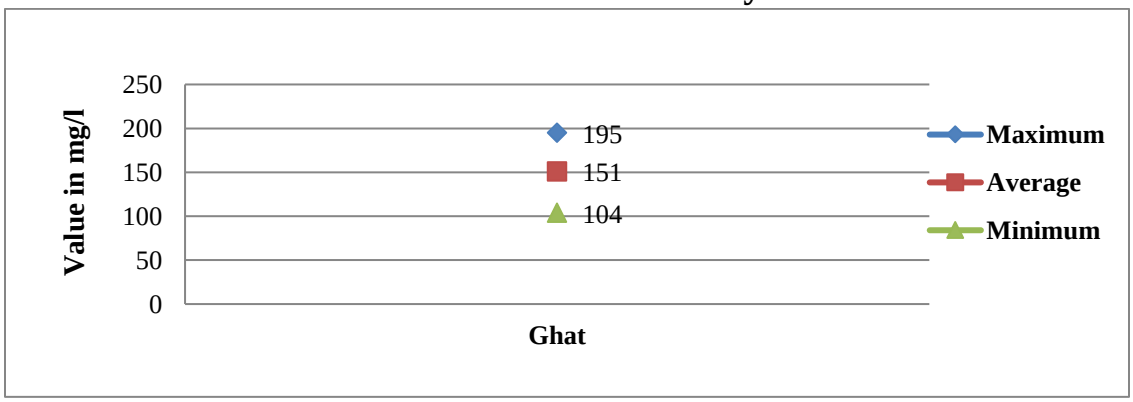
Site Name (From U/S to D/S)	Inception Date	Avg. of Yearly Maximum			Avg. of Yearly Minimum			Annual Average		
		Since inception	10 year	One year	Since inception	10 year	One year	Since inception	10 year	One year
Ghat	01.06.2006	203	203	195	116	116	104	153	153	151

Parameter : TDS since inception

Parameter : TDS last 10 year



Parameter : TDS last one year



5. General Remark / Conclusion about W.Q. trend –

River 1 Ghaghra :

The BOD value ranges from 0.4 – 3.90 mg/l and DO value is more than 6.0 mg/l which is within tolerance limit for Class A water.
The fluoride value ranged 0.05 - 0.46 mg/l , with maximum recorded during 2017-18 and the water is safe for human consumption with respect to fluoride.
The TDS value ranged between 108-246 mg/l .Tolerance limit for Class A is 500 mg/l.
The Total Coliform ranges between 100 to 12500 and the maximum T. Coliform reported at Ayodhyay due to obvious reasons.

River 2 Rapti :

The BOD value ranges from .76 – 7.6 mg/l. However the average BOD is less than 3.0 mg/l for all sites.
The DO value ranged between 2.7 to 9.2 with average DO value more than 6.1 mg/l., which is within tolerance limit for Class A water.
The fluoride value ranged 0.05 – 0.48 mg/l and water is safe for human consumption with respect to fluoride.
The TDS value ranged between 110 – 256 mg/l. Tolerance limit for Class A is 500 mg/l.
Total Coliform ranges between 700 to 12000 MPN with highest being recorded at Birdghat site along which the city of Gorakhpur is located.

River 3 Sharda :

There is only one Water Quality monitoring Station on river Sharda at Paliakalan.
The BOD value ranges from 0.03 –2.9 mg/l which is within tolerance limit for Class A water.
The DO value ranged between 3.3 to 7.6 mg/l with this years average being 6.6 mg/l.
The fluoride value range is observed to be in between 0.06 to 0.36 mg/l and water is safe for human consumption with respect to fluoride.
Average TDS value ranged between 115 – 230 mg/l with this years average value being 190 mg/l and is within the tolerance limit for Class A is 500 mg/l.

River 4 Kwano :

The BOD value ranged between 1.4 to 13.7 mg/l with this Years average BOD being 7.5 mg/l which is slightly higher than Class A waters..
The DO value lies in between 2.0 to 7.8 mg/l.
The fluoride levels vary in between 0.05 to 0.42 mg/l and water is safe for human consumption with respect to fluoride.
TDS value lies in the range of 108 to 318 mg/l and is within the tolerance limit for Class A is 500 mg/l.

Total Coliform in the river waters were found to be in the range of 800-9000 MPN.

River 5 Sarju :

The BOD value lies in between 0.4 to 3.2 mg/l which is within tolerance limit for Class A water.
The Average DO value is about 7.4 mg/l which is within tolerance limit for Class A water.
The range of Fluoride values is between 0.12- 0.22mg/l and water is safe for human consumption with respect to fluoride.
TDS value varied between 96 - 207 mg/l. Tolerance limit for TDS for Class A is 500 mg/l.
The Total Coliform values lies in between 400 – 4100 MPN.

In general the water quality of Ghaghra and its tributaries are till now within permissible limits /slightly above permissible limits for BOD, DO, TDC, Fluoride. The Total Coliform at all stations were found to be much above the permissible limits and is the only matter of concern for Ghaghra river/its Tributaries.

History Sheet

&

WQ Data

HISTORY SHEET (WATER QUALITY)

			Water Year	:	2017 - 2018
Site	:	Paliakalan	**Code**	:	006-MGD1LKN
State	:	Uttar Pradesh	**District**		Kheri
Basin	:	GANGA	**Independent River**	:	Ganga
Tributary	:	Ghagra	**Sub Tributary**	:	Sarda
Sub-Sub Tributary	:	-	**Local River**	:	Sarda
Division	:	Middle Ganga Division-I (MGD-I), Lucknow	**Sub-Division**	:	Upper SardaSub-Division, Haldwani
Drainage Area	:	17676.0 Sq. Km.	**Bank**	:	Left
Latitude	:	28°22'59''	**Longitude**	:	80°32'59''
Current Zero of Gauge (m)	:	148			

CATEGORY		Opening Date	Closing Date
Gauge	:		
Discharge	:		
Sediment	:		
Water Quality	:		

Reduced Level	Opening Date	Closing Date
148.0	24/04/1959	02/06/2014
148.0	02/06/2014	-

Water Quality Datasheet (River Water Analysis) for the period : 2017 - 2018

Station Name: Paliakalan(006-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Sarda Sub Division: Upper SardaSub-Division, Haldwani

PARAMETERS	01/06/2017	01/07/2017	01/08/2017	01/09/2017	03/10/2017	01/11/2017	01/12/2017	01/01/2018	01/02/2018	05/03/2018	02/04/2018	01/05/2018
Q (cumec)	72.97	594.32	2618.21	1126.58	550.51	253.72	169.89	42.79	36.61	26.53	27.87	39.16
CHEMICAL												
K(mg/L)	6	7.2	6.6	5.9	6.2	6	5.4	6	6.8	7	6.4	7.2
F(mg/L)	0.32	0.35	0.31	0.26	0.3	0.28	0.26	0.3	0.34	0.36	0.28	0.26
NH3-N(mgN/L	0.26	0.3	0.26	0.22	0.26	0.25	0.22	0.26	0.3	0.32	0.28	0.34
CO3(mg/L)	1.7	1.8	0	0	0	0	0	0	0	0	0	0
Cl(mg/L)	14	17	14	10	14	14	12	14	16	18	17	18
NO2-N(mg/L)												
SO4(mg/L)	15.8	18.5	15.2	14	16.4	16.8	16	17.4	18.8	20.2	18.8	22.5
Ca(mg/L)	38	41.28	36.12	34	37.84	39.56	34.4	44.72	48.16	53.32	52.18	50.25
Na(mg/L)	9	10.8	9.5	7.5	8.6	8.4	7.8	8.6	10.6	12.4	10.6	12.3
P-Tot(mgP/L)	0.39	0.41	0.36	0.34	0.4	0.38	0.36	0.4	0.44	0.46	0.38	0.42
-TOT(mgCaCO	149.23	188.53	164	152.46	164	168	160	184	216	220	187.42	195.8
HCO3(mg/L)	178.6	186.7	200.08	186	200.08	204.96	195.2	224.48	263.52	268.4	228.65	238.88
Mg(mg/L)	19.6	21.2	18.58	17.5	20.64	21.67	19.61	22.7	28.9	30.96	24.08	22.5
SiO2(mg/L)	7.2	8.8	8	8	8	7.8	7.2	8	8.6	9	8.3	9.2
Phen(mgCaCO	1.41	0.17	0	0	0	0	0	0	0	0	0	0
B(mg/L)	0.16	0.2	0.16	0.12	0.16	0.16	0.14	0.16	0.18	0.2	0.18	0.2
TRACE & TOXIC												
PESTICIDES												
BIOLOGICAL/BACTEOROLOGICA												
COD(mg/L)	6	8	7	12	4	3	3	5	7	5	3	7
SAT%(Percent	3.33	6.27	7.06	6.66	6.47	7.25	7.84	8.62	7.45	7.25	6.08	3.92
Chlf-a(µg/L)												
BOD3-27(mg/L	2.9	2.6	2.16	2.54	1.57	0.98	0.98	1.17	1.37	2.57	1.98	2.94
MPN(MPN/10	2700	2200	1700	1800	900	300	200	300	500	300	300	200
MPN(MPN/10	6000	5500	3000	4000	1800	900	700	700	1200	1000	1000	700
PHYSICAL												
_FLD(µmho/c									312	325	318	239
Colour_Cod(-	Clear	Brown	Brown	Brown	Brown	Light Brown	Clear	Clear	Clear	Clear	Clear	Clear

Water Quality Datasheet (River Water Analysis) for the period : 2017 - 2018

Station Name: Paliakalan(006-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Sarda Sub Division: Upper SardaSub-Division, Haldwani

Odour_Code(-	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
SS(mg/L)												
H_GEN(pH un	8	7.7	7.6	7.9	7.9	8.1	8.1	8.1	8.2	7.9	7.9	8
TDS(mg/L)	128	157	133	165	165	162	144	180	200	216	200	200
_GEN(µmho/c	210	260	220	190	270	270	240	300	330	360	330	330
Degrees Celsiu	28	29	29	27.5	25.5	22.5	17	16	16	21	25	29
H_FLD(pH uni	8	8	7.5	7.5	7.5	7.5	7.5	7	7.2	7.3	7.5	8.1
CHEMICAL INDICES												
_Total(mgCaC	207.33	225	196.95	185.42	209.27	219.01	192.36	243.08	272.92	299.57	277.62	265.62
R_Ca(mgCaCO	518.33	562.5	492.38	463.54	523.17	547.52	480.89	607.71	682.29	748.92	694.04	664.06

Water Quality Summary (River Water Summary) for the period : 2017 - 2018

Station Name: Paliakalan(006-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Sarda Sub Division: Upper SardaSub-Division, Haldwani

PARAMETERS	No. of Observations	Maximum	Minimum	Mean	Flood (Jun-Oct)	Winter (Nov-Feb)	ummer (Mar-May)
Q (cumec)	365	3250.91	21.81	475.2	1033.44	100.06	36.13
CHEMICAL							
Cl	12	18	10	14.83	13.8	14	17.67
HCO3	12	268.4	178.6	214.63	190.29	222.04	245.31
SiO2	12	9.2	7.2	8.18	8	7.9	8.83
F	12	0.36	0.26	0.3	0.31	0.29	0.3
P-Tot	12	0.46	0.34	0.4	0.38	0.4	0.42
B	12	0.2	0.12	0.17	0.16	0.16	0.19
Na	12	12.4	7.5	9.68	9.08	8.85	11.77
Alk-Phen	12	1.41	0	0.13	0.32	0	0
SO4	12	22.5	14	17.53	15.98	17.25	20.5
ALK-TOT	12	220	149.23	179.12	163.64	182	201.07
K	12	7.2	5.4	6.39	6.38	6.05	6.87
CO3	12	1.8	0	0.29	0.7	0	0
Mg	12	30.96	17.5	22.33	19.5	23.22	25.85
Ca	12	53.32	34	42.49	37.45	41.71	51.92
NH3-N	12	0.34	0.22	0.27	0.26	0.26	0.31
TRACE & TOXIC							
PESTICIDES							
BIOLOGICAL/BACTEOROLOGIC							
Tcol-MPN	12	6000	700	2208.33	4060	875	900
COD	12	12	3	5.83	7.4	4.5	5
BOD3-27	12	2.94	0.98	1.98	2.35	1.12	2.5
FCol-MPN	12	2700	200	950	1860	325	266.67
DO_SAT%	12	8.62	3.33	6.52	5.96	7.79	5.75
PHYSICAL							
TDS	12	216	128	170.83	149.6	171.5	205.33
pH_GEN	12	8.2	7.6	7.95	7.82	8.12	7.93
EC_GEN	12	360	190	275.83	230	285	340
pH_FLD	12	8.1	7	7.55	7.7	7.3	7.63
Temp	12	29	16	23.79	27.8	17.88	25
EC_FLD	4	325	239	298.5		312	294
CHEMICAL INDICES							
HAR_Total	12	299.57	185.42	232.85	204.79	231.84	280.94
HAR_Ca	12	748.92	463.54	582.11	511.98	579.6	702.34

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Paliakalan(006-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Sarda Sub Division: Upper SardaSub-Division, Haldwani

PARAMETERS	Flood (Jun-Oct)											
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2007-2008
Q (cumec)	993.02	1201.57	1479.31	1244.68	880.42	590.95	1386.19	979.7	645.74	1152.39	1033.44	207.32
BIOLOGICAL/BACTEOROLOGICAL												
BOD3-27			0.98	0.81	0.79	0.97	0.86	0.83	1.45	1.88	2.35	
COD				2	16.4	7.25	4.2	4.4	8.6	9.08	7.4	
DO	7.15	7.18	6.94	7.4	7.64	7.45	7.09	6.98	6.66	6.6		7.27
DO_SAT%	85.62	83.42	77.85	83.16	80.53	89.36	88.08	89.8	83.61	83.68	5.96	72.74
FCol-MPN										4500	1860	
Tcol-MPN										13000	4060	
CHEMICAL												
ALK-TOT	252.61	294.84	150.61	125.6	115.5	119.2	141.6	102.4	120.8	129.6	163.64	339.67
Alk-Phen	3.83	5.73	0.97	3.98	1.33	3.19	3.19	4.78	3.19	2.39	0.32	9.71
B	0.08	0.16	0.13	0.12	0.14	0.14	0.18	0.21	0.18	0.18	0.16	0.15
CO3	4.62	6.9	1.17	4.8	0.98	3.84	3.84	5.76	3.84	2.88	0.7	11.7
Ca	31.12	35.2	38.25	29.92	25.82	30.68	30.68	23.72	33.72	33.38	37.45	42
Cl	10.15	10.93	14.35	13.63	9.76	13.63	13.63	16.05	10.01	10.04	13.8	18.64
F	0.21	0.13	0.16	0.14	0.1	0.13	0.17	0.16	0.28	0.26	0.31	0.18
Fe	0.22				0.11							0.27
HCO3	149.33	172.75	181.36	143.47	134.44	137.62	164.94	113.22	139.57	152.26	190.29	195.2
K	3.52	3.83	4.54	4.22	4.14	4.61	4.38	3.99	3.83	4.3	6.38	3.91
Mg	13.71	8.68	18.42	17.91	14.84	20	18.57	15.26	14.85	16.09	19.5	11.42
NH3-N			0.07	0.15	0.71	0.54	0.26	0.38	0.31	0.31	0.26	
NO2+NO3		0.28	0.09	0.09	0.75	0.63	0.57	0.43	0.48	0.54		
NO2-N	0.1	0.06	0.04	0.04	0.14	0.14	0.19	0.13	0.03	0.16		0.12
NO3-N		0.22	0.05	0.05	0.61	0.49	0.38	0.3	0.45	0.39		
Na	8.05	8.19	11.19	6.58	4.13	5.06	9.48	4.74	5.7	5.87	9.08	8.17
Ni												
P-Tot			0.11							0.29	0.38	
SO4	37.63	18.34	21.18	20.16	8.85	16.99	17.47	16.42	18.43	15.14	15.98	23.28
SiO2	8.8	8.72	6.94	5.62							8	9.7
o-PO4-P	0.06	0.05	0.04	0.07	0.1	0.26	0.29	0.43	0.27			0.06
CHEMICAL INDICES												
HAR_Ca											511.98	
HAR_Total	134.9	124.15	172.05	149.42	126.26	160.03	154.06	122.88	146.16	150.51	204.79	152.59
Na%	11.51	12.68	12.14	8.43	6.47	5.99	11.44	7.57	7.82	7.55		10.17
RSC	0.08	0.6	0.18	0	0	0	0	0	0	0		0.55
SAR	0.31	0.33	0.37	0.23	0.16	0.17	0.33	0.19	0.21	0.21		0.29
PESTICIDES												
PHYSICAL												
EC_FLD						199						
EC_GEN	307.66	389.54	252	264	199.4	203.68	247.84	254	280	229.4	230	258.25
SS												

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Paliakalan(006-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Sarda Sub Division: Upper SardaSub-Division, Haldwani

Secchi	77.62	88.46	95.5	74.8	64.4	76.7	77.09	59.3	84.3	83.46		105
TDS		265.54	183.6	160	120.6	123.9	162.19	155.2	169.4	144.8	149.6	
Temp	24.58	22.87	21.1	20.8	18.1	25.21	26.46	28.7	27.1	27.5	27.8	15.25
Turb										4.44		
pH_FLD	7.5	8				7.55	7.71				7.7	
pH_GEN	7.95	7.76	8.02	7.85	7.86	8.21	8.27	8.48	8.27	8.08	7.82	8.06
TRACE & TOXIC												
As												
Cd												
Cr												
Cu												
Pb												
Zn												

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Paliakalan(006-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Sarda Sub Division: Upper SardaSub-Division, Haldwani

Winter (Nov-Feb)

2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
215.95	325.34	584.55	209.41	114.45	111.3	231.82	93.06
	1.7	1.06	0.83	0.98	0.93	0.98	1.42
		1	10.75	6.25	4.25	5.25	8.75
7.18	6.95	7.71	7.74	7.19	6.96	7.05	6.91
69.66	65.84	74.36	75.93	76.68	74.76	72.97	74.51
312.62	149.5	115	155	134	132	141	183
6.23	6.72	0	0	0	7.97	14.94	5.98
0.14	0.15	0.14	0.15	0.16	0.16	0.22	0.18
7.5	8.1	0	0	0	9.6	18	7.2
39.15	36.95	26.7	35.7	29.25	32.7	42.15	44.7
17.93	15.53	14.02	15	13.05	12.07	13.93	11.45
0.15	0.16	0.14	0.15	0.16	0.18	0.33	0.3
210.45	165.92	140.3	189.1	163.48	141.52	135.42	208.62
5.28	4.99	4.79	3.91	4.69	4.2	3.87	5.18
17.4	16.25	17.28	19.83	19.08	19.08	15.98	21.66
	0.13	0.17	0.64	0.44	0.37	0.33	0.33
0.27	0.08	0.08	0.86	0.43	0.56	0.43	0.49
0.07	0.03	0.04	0.46	0.1	0.25	0.05	0.03
0.21	0.05	0.04	0.41	0.33	0.3	0.38	0.46
7.24	10.75	6.9	5.46	6.96	6.1	8.11	6.67
0.27	0.16						
23.88	16.56	18.12	12.48	18.84	16.92	31.32	18.96
7.58	6.8	5.92					
0.07	0.13	0.13	0.11	0.39	0.27	0.35	0.33
170.4	160.09	138.76	171.9	152.61	161.23	171.95	201.99
8.77	12.42	9.42	6.28	8.68	7.48	9.33	6.55
0.67	0	0	0	0	0	0	0
0.25	0.37	0.26	0.18	0.24	0.21	0.27	0.2
383.17	365	315	298.71	320	360	341.5	310

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Paliakalan(006-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Sarda Sub Division: Upper SardaSub-Division, Haldwani

98.64	92.38	66.75	89.35	73.12	81.75	105.38	111.75
257.34	221	189.5	177.84	200.75	233.25	185.75	192.5
13.9	10.75	14.12	14.61	19.12	18.88	17.25	19.12
8.06			7.97	7.15			
7.93	8.29	7.96	7.85	8.01	8.42	8.51	8.35

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Paliakalan(006-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Sarda Sub Division: Upper SardaSub-Division, Haldwani

		Summer (Mar-May)										
2016-2017	2017-2018	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
117.86	100.06	50.17	42.99	79.66	152.71	80.91	57.15	73.81	282.3	45.44	52.64	36.13
1.54	1.12		0.59	1.15	0.79	0.85	0.98	0.92	1.44	1.5	2.63	2.5
8.33	4.5				9.33	8	24.67	6	7.33	9	9	5
6.73		7.33	7.03	7.07	7.88	7.25	7.75	6.73	7.06	6.86		
73.54	7.79	84.42	83.13	80.03	83.24	79.82	93.2	79.02	85.8	81.66	4.31	5.75
4666.67	325										1866.67	266.67
8600	875										3333.33	900
154.67	182	414.03	315.33	161.33	133.33	174.07	158.67	156	144	172.15	175.4	201.07
3.98	0	9.71	9.96	2.66	5.31	2.66	5.31	7.97	17.26	2.56	0.53	0
0.19	0.16	0.2	0.13	0.15	0.17	0.15	0.17	0.18	0.21	0.19	0.19	0.19
3.43	0	11.7	12	3.2	6.4	3.2	6.4	9.6	20.8	3.08	1.63	0
36.78	41.71	42.67	45.33	37.87	31.53	34.93	32.67	35	39	40.75	42.15	51.92
11.59	14	21.54	35.26	18.58	17.28	14.67	18.58	17.28	11.95	13.32	16	17.67
0.29	0.3	0.17	0.14	0.15	0.14	0.14	0.18	0.22	0.3	0.34	0.34	0.3
		0.3								1		
161.8	222.04	240.54	360.31	190.32	149.65	205.85	180.56	170.8	133.39	203.76	173.7	245.31
5.24	6.05	4.82	24.11	6.13	5.6	6.52	5.6	5.34	4.95	5.71	7	6.87
21.65	23.22	14.46	21.99	19.97	17.21	27.01	22.03	20.61	17.21	22.02	21.99	25.85
0.31	0.26			0.29	0.16	0.66	0.38	0.38	0.35	0.34	0.32	0.31
0.46			0.19	0.1	0.27	0.78	0.6	0.55	0.51	0.48		
0.11		0.14	0.08	0.05	0.13	0.14	0.2	0.18	0.05	0.04		
0.35			0.11	0.05	0.14	0.64	0.4	0.37	0.46	0.44		
7.05	8.85	8.97	36.65	11.88	9.58	10.73	10.58	8.97	6.59	8.38	9.9	11.77
										1		
0.37	0.39		0.16	0.24							0.41	0.42
15.34	17.25	28.64	20.48	18.08	19.52	12.16	20.32	18.56	19.2	17.42	17.93	20.5
	7.9	10.2	7.37	6.6	6.53							8.83
		0.06		0.24	0.13	0.2	0.38	0.25	0.25	0.37		
	579.6										576.47	702.34
182.04	231.84	166.91	204.96	177.86	150.55	199.89	173.47	173.39	169.22	193.3	230.59	280.94
7.37		10.19	19.25	12.32	11.7	10.08	11.42	9.82	7.58	8.53		
0		1.01	2.23	0	0	0	0	0	0	0		
0.22		0.3	0.96	0.39	0.34	0.33	0.35	0.3	0.22	0.27		
	312										14	294
303.33	285	269.33	323.52	383.33	315	360	323.33	360	306.67	330	327.67	340
											9	

93.17		106.67	110.22	94.67	79.16	87.33	81.67	87.5	97.5	101.67		
195.45	171.5		243.04	233.33	184.64	208.67	221.67	223.33	171.33	203.67	199.67	205.33
18.62	17.88	22.33	22.93	21.33	18.09	20.33	24.83	23.5	25.33	24.17	25.33	25
2.77												
8	7.3		8.1		7.9	7.75	7.43				8	7.63
8.27	8.13	8.15	8.26	8.2	8.23	8.15	8.24	8.45	8.76	8.32	8.2	7.93
										1		
										1		
										2		
										1		
										1		
										1		

HISTORY SHEET (WATER QUALITY)

		Water Year	: 2017 - 2018
Site	: Elginbridge	**Code**	: 010-MGD1LKn
State	: Uttar Pradesh	**District**	Bara Banki
Basin	: GANGA	**Independent River**	: Ganga
Tributary	: Ghagra	**Sub Tributary**	: -
Sub-Sub Tributary	: -	**Local River**	: Ghagra
Division	: Middle Ganga Division-I (MGD-I), Lucknow	**Sub-Division**	: Upper Rapti Sub-Division, Gonda
Drainage Area	: 74713.0 Sq. Km.	**Bank**	: Right
Latitude	: 27°4'59''	**Longitude**	: 81°29'0''
Current Zero of Gauge (m)	: 97.57		

CATEGORY	Opening Date	Closing Date
Gauge :		
Discharge :		
Sediment :		
Water Quality :		

Reduced Level	Opening Date	Closing Date
97.566	29/08/1961	01/08/2014
97.57	01/08/2014	-

Water Quality Datasheet (River Water Analysis) for the period : 2017 - 2018

Station Name: Elginbridge(010-MGD1LKn) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Ghagra Sub Division: Upper Rapti Sub-Division, Gonda

PARAMETERS	01/06/2017	01/07/2017	01/08/2017	01/09/2017	03/10/2017	01/11/2017	01/12/2017	01/01/2018	01/02/2018	05/03/2018	02/04/2018	01/05/2018
Q (cumec)	363.13	1283.2	5681.22	3344.25	1305.83	1150.79	923.92	503.86	464.22	178	152.57	317.27
CHEMICAL												
Mg(mg/L)	13.4	12.38	12.38	11.3	18.58	21.67	12.4	14.45	17.54	19.61	17.51	15.18
Cl(mg/L)	6	5	5	4	10	14	6	8	11	15	14	12
CO3(mg/L)	1.1	0.8	0	0	0	0	0	0	0	0	0	0
SiO2(mg/L)	8	7.4	7	6.6	7.4	7.8	7	7.4	8	8.6	7.8	7.5
B(mg/L)	0.12	0.1	0.08	0.06	0.1	0.12	0.1	0.12	0.14	0.16	0.15	0.12
NO2-N(mg/L												
F(mg/L)	0.21	0.18	0.16	0.15	0.2	0.24	0.2	0.22	0.24	0.27	0.22	0.18
Ca(mg/L)	29	27.52	26.83	26	34.4	37.84	27	30.96	34.4	39.56	35.48	28.15
K(mg/L)	3.3	2.9	2.8	2.4	3.5	4	3	3.6	4	4.8	5.5	3.5
P-Tot(mgP/L	0.3	0.26	0.24	0.22	0.28	0.32	0.26	0.28	0.3	0.34	0.28	0.26
SO4(mg/L)	9	8.4	8	7.8	10.2	12	8.2	8.8	9.2	10.4	11	9
TOT(mgCaC	96.34	112.5	112	108.2	160	172	116.39	140	152	160	151.79	137.83
Na(mg/L)	3.8	3.1	2.9	2.7	6.6	9.2	4.2	5.5	7.7	9.5	10	6.6
Phen(mgCaC	0.91	0.25	0	0	0	0	0	0	0	0	0	0
HCO3(mg/L)	115.3	111.6	136.64	132	195.2	209.84	142	170.8	185.44	195.2	185.18	168.15
NH3-N(mgN/L	0.25	0.22	0.2	0.2	0.24	0.28	0.2	0.22	0.24	0.26	0.22	0.18
TRACE & TOXIC												
PESTICIDES												
BIOLOGICAL/BACTEOROLOGICA												
OD3-27(mg/	3.1	3.9	1.76	2.35	1.57	1.18	1.37	1.18	1.36	1.37	1.18	2.16
Chlf-a(µg/L)												
MPN(MPN/1	5500	6000	2000	1800	1100	700	700	600	900	700	800	1000
SAT%(Percen	4.9	5.1	8.23	6.27	6.86	7.06	6.47	7.45	7.06	6.47	6.66	5.49
COD(mg/L)	7	9	6	5	4	3	5	4	5	3	4	5
MPN(MPN/1	2300	2500	1200	1000	400	200	300	200	300	200	300	300
PHYSICAL												
Colour_Cod(-	Clear	Clear	Dark Brown	Brown	Brown	Brown	Brown	Light Brown	Light Brown	Clear	Light Brown	Light Brown
H_FLD(pH un	8	7.9	7.9	7.5	7.7	7.5	7.5	8	7.8	7.8	7.7	8.4
TDS(mg/L)	144	134	120	109	210	246	132	144	155	180	175	145

Water Quality Datasheet (River Water Analysis) for the period : 2017 - 2018

Station Name: Elginbridge(010-MGD1LKn) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Ghagra Sub Division: Upper Rapti Sub-Division, Gonda

SS(mg/L)												
)dour_Code(	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
)egrees Celsi	28	30	28	28	28	25	17	16	14	20	25	27
_FLD(µmho/(												219
GEN(µmho/	238	220	200	180	350	410	220	240	260	300	290	240
I_GEN(pH ur	7.8	7.6	7.6	7.9	7.8	7.5	7.5	7.7	8.2	8	7.5	8
CHEMICAL INDICES												
Total(mgCaC	154.33	145.62	142.74	136.58	189.78	211.84	143.5	165.12	187.18	213.86	191.61	155.24
_Ca(mgCaCO	385.83	364.04	356.86	341.46	474.46	529.6	358.75	412.81	467.96	534.65	479.02	388.11

Water Quality Summary (River Water Summary) for the period : 2017 - 2018

Station Name: Elginbridge(010-MGD1LKn) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Ghagra Sub Division: Upper Rapti Sub-Division, Gonda

PARAMETERS	No. of Observatio	Maximum	Minimum	Mean	Flood (Jun-Oct)	Winter (Nov-Feb)	Summer (Mar-May)
Q (cumec)	365	8150.34	130.29	1400.15	2738.14	587.02	235.62
CHEMICAL							
Cl	12	15	4	9.17	6	9.75	13.67
SiO2	12	8.6	6.6	7.54	7.28	7.55	7.97
HCO3	12	209.84	111.6	162.28	138.15	177.02	182.84
F	12	0.27	0.15	0.21	0.18	0.23	0.22
P-Tot	12	0.34	0.22	0.28	0.26	0.29	0.29
B	12	0.16	0.06	0.11	0.09	0.12	0.14
Na	12	10	2.7	5.98	3.82	6.65	8.7
Alk-Phen	12	0.91	0	0.1	0.23	0	0
SO4	12	12	7.8	9.33	8.68	9.55	10.13
ALK-TOT	12	172	96.34	134.92	117.81	145.1	149.87
K	12	5.5	2.4	3.61	2.98	3.65	4.6
CO3	12	1.1	0	0.16	0.38	0	0
Mg	12	21.67	11.3	15.53	13.61	16.51	17.43
Ca	12	39.56	26	31.43	28.75	32.55	34.4
NH3-N	12	0.28	0.18	0.23	0.22	0.24	0.22
TRACE & TOXIC							
PESTICIDES							
BIOLOGICAL/BACTEOROLOGICAL							
Tcol-MPN	12	6000	600	1816.67	3280	725	833.33
COD	12	9	3	5	6.2	4.25	4
BOD3-27	12	3.9	1.18	1.87	2.54	1.27	1.57
FCol-MPN	12	2500	200	766.67	1480	250	266.67
DO_SAT%	12	8.23	4.9	6.5	6.27	7.01	6.21
PHYSICAL							
TDS	12	246	109	157.83	143.4	169.25	166.67
pH_GEN	12	8.2	7.5	7.76	7.74	7.72	7.83
EC_GEN	12	410	180	262.33	237.6	282.5	276.67
Temp	12	30	14	23.83	28.4	18	24
pH_FLD	12	8.4	7.5	7.81	7.8	7.7	7.97
EC_FLD	1	219	219	219			219
CHEMICAL INDICES							
HAR_Total	12	213.86	136.58	169.78	153.81	176.91	186.9
HAR_Ca	12	534.65	341.46	424.46	384.53	442.28	467.26

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Elginbridge(010-MGD1LKn) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Ghagra Sub Division: Upper Rapti Sub-Division, Gonda

PARAMETERS	Flood (Jun-Oct)											
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2007-2008
Q (cumec)	6211.06	5925.78	4148.93	5072.59	5629.83	7658.62	9904.1	3782.11	3313.17	2571.56	2738.14	446.6
Zn												
BOD3-27			0.75	0.77	0.59	0.94	0.94	0.9	1.1	1.1	2.54	
COD				7	3.4	4.4	5	4	6	6	6.2	
DO	7.25	7.14	7.25	7.11	7.33	7.29	7.1	6.94	6.78	7.01		7.08
DO_SAT%	93.34	89.95	92.99	91.34	94.06	94.85	88.03	90.6	87.93	90.31	6.27	78.47
FCol-MPN										2750	1480	
Tcol-MPN										7500	3280	
CHEMICAL												
ALK-TOT	250.82	283.23	120.4	116.8	113.11	118.4	128	107.2	101.6	112.8	117.81	310.4
Alk-Phen	4.83	5.73	0.99	3.19	0	1.59	5.58	3.98	1.59	2.39	0.23	7.22
B	0.06	0.15	0.13	0.12	0.16	0.14	0.17	0.21	0.17	0.17	0.09	0.13
CO3	5.82	18.96	1.19	3.84	0	1.92	6.72	4.8	1.92	2.88	0.38	8.7
Ca	32.28	56.8	37.48	29.92	27.17	29.24	28.16	27.48	31.32	29.92	28.75	40
Cl	8.38	22.93	13.49	13.63	8.92	12.85	13.63	16.4	8.45	8.05	6	11.18
F	0.13	0.1	0.15	0.13	0.12	0.14	0.15	0.19	0.27	0.25	0.18	0.12
Fe	0.16				0.07							0.21
HCO3	147.01	234.85	144.47	134.69	138	140.54	142.5	121.02	120.05	131.76	138.15	180.41
K	3.75	10.09	4.15	4.22	3.6	4.07	3.99	3.91	3.16	3.47	2.98	4.11
Mg	7.24	9.65	18.37	16.5	15.24	19.59	16.31	15.26	10.47	14.02	13.61	7.2
NH3-N			0.21	0.15	0.48	0.55	0.28	0.36	0.3	0.29	0.22	
NO2+NO3		0.11	0.08	0.08	0.88	0.59	0.57	0.58	0.46	0.41		
NO2-N	0.04	0.06	0.04	0.04	0.15	0.14	0.22	0.19	0.02	0.05		0.06
NO3-N		0.04	0.04	0.04	0.73	0.45	0.35	0.39	0.44	0.36		
Na	9.11	18.49	9.45	8.92	4.23	5.2	9.43	5.7	4.88	5.04	3.82	9.32
Ni												
P-Tot			0.13							0.28	0.26	
SO4	116.74	21.22	18.88	21.22	12.01	17.57	15.55	15.36	17.66	14.44	8.68	24.72
SiO2	9.42	8.68	6.4	5.52							7.28	9.85
o-PO4-P	0.02	0.05	0.05	0.08	0.09	0.32	0.29	0.43	0.27			0.02
CHEMICAL INDICES												
HAR_Ca											384.53	
HAR_Total	110.87	182.2	170.25	143.55	131.58	154.71	138.34	132.29	121.94	133.2	153.81	130
Na%	14.72	15.52	10.49	11.04	6.37	6.43	12.46	8.44	8.07	7.32		13.09
RSC	0.4	0.85	0	0	0	0	0	0	0	0		0.66
SAR	0.38	0.52	0.31	0.32	0.16	0.18	0.35	0.22	0.2	0.19		0.36
PESTICIDES												
PHYSICAL												
EC_FLD						163						
EC_GEN	278.55	289.2	223.7	221.31	180.2	172.45	219.74	234	245.4	186.8	237.6	261.68
Secchi	81.08	142	93.86	74.85	68	72.68	70.49	68.7	78.3	74.8		100
TDS		190	166.35	132.36	109.2	103.7	144.76	143.8	145.6	117.4	143.4	

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Elginbridge(010-MGD1LKn) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Ghagra Sub Division: Upper Rapti Sub-Division, Gonda

Temp	28.58	27.3	28.23	28.44	28.4	29.09	26.49	29.5	29.1	28.5	28.4	20.4
Turb										1.56		
pH_FLD	7	7	7	7.95	8.22	8.2	8.17				7.8	7
pH_GEN	8.16	8.06	7.87	7.91	7.94	8.19	8.42	8.42	8.26	8.2	7.74	8.39
TRACE & TOXIC												
As												
Cd												
Cr												
Cu												
Pb												
Zn												

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Elginbridge(010-MGD1LKn) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Ghagra Sub Division: Upper Rapti Sub-Division, Gonda

Winter (Nov-Feb)

2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
630.97	777.76	790.23	672.02	1008.91	2345.94	998.62	864.99
	1.07	0.49	0.68	0.93	1.17	0.78	1.33
		2	7.75	4.25	4.5	3.75	7.5
7.18	7.19	7.36	7.45	7.25	7.01	7.2	7.06
82.08	78.71	81.5	81.22	80.16	79.09	78.57	78.75
305.15	138.92	116	166	128	123	145	167
7.47	1	0	1.99	0	5.98	11.95	4.98
0.14	0.14	0.15	0.15	0.16	0.17	0.21	0.17
11.7	1.2	0	2.4	0	7.2	14.4	6
40.1	35.6	30.73	35.3	28.4	30.1	48.15	40
25.03	12.08	13.08	14.02	14.02	13.05	11.54	10.03
0.11	0.17	0.14	0.15	0.16	0.16	0.3	0.29
167.14	167.04	140.49	197.64	156.16	135.42	147.62	191.54
12.32	5.67	5	4.11	4.5	3.23	2.53	4.59
14.49	18.29	16.52	21.93	18.8	18.29	17.01	19.59
	0.2	0.17	0.63	0.44	0.35	0.32	0.32
0.1	0.09	0.06	0.58	0.45	0.53	0.55	0.46
0.06	0.04	0.04	0.13	0.1	0.23	0.13	0.01
0.05	0.05	0.03	0.44	0.36	0.29	0.42	0.45
20.93	8.85	6.74	6.04	6.84	6.21	6.56	6.04
	0.2	0.11					
20.76	21	18.72	11.52	18.48	16.32	36.84	18.6
8.35	6.05	6.03					
0.07	0.24	0.14	0.12	0.4	0.28	0.35	0.32
160.62	165.22	145.32	179.63	149.34	151.44	191.25	181.63
15.79	10.09	8.93	6.67	8.75	8.09	6.92	6.58
0.72	0	0	0	0	0	0	0
0.62	0.3	0.24	0.2	0.24	0.22	0.21	0.2
299.55	302.5	281.29	242.5	297.5	303.1	307.5	282.5
97.87	89	76.84	88.25	71	74.88	120.38	100
198.52	178.25	172.03	148.5	189.25	197.86	169.75	175

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Elginbridge(010-MGD1LKn) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Ghagra Sub Division: Upper Rapti Sub-Division, Gonda

21.98	20	20.34	19.62	20.38	21.41	20	20.88
7	8.35	8	8.2	8.22	8.4		
8.07	8.4	8.05	8.02	8.01	8.29	8.52	8.35

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Elginbridge(010-MGD1LKn) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Ghagra Sub Division: Upper Rapti Sub-Division, Gonda

		Summer (Mar-May)										
2016-2017	2017-2018	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
535.44	587.02	227.9	174.22	440.2	331.23	296.42	1011	522.39	954.94	227.92	448.68	235.62
1.09	1.27		0.8	1.06	0.72	0.91	0.85	1.04	0.91	1.17	6.9	1.57
5.67	4.25				6.33	13.67	11	6	4.67	7.33	5.33	4
7.25		6.33	7.09	7.07	7.45	7.32	7.38	6.66	7.19	6.86		
82.06	7.01	75.83	85.58	86.72	89	87.59	86.68	82.53	87.95	84.01	5.44	6.21
2100	250										1666.67	266.67
5083.33	725										3200	833.33
126.67	145.1	346	272.77	145.54	129.32	170.67	142.67	156	137.33	155.02	134.48	149.87
0	0	8.05	15.04	6.69	2.66	5.31	5.31	7.97	13.28	1.43	0.03	0
0.17	0.12	0.19	0.11	0.15	0.16	0.17	0.19	0.2	0.2	0.17	0.16	0.14
0.55	0	9.7	18.12	8.06	3.2	6.4	6.4	9.6	16	1.72	1.03	0
30.63	32.55	42.67	29.82	35.71	30.27	34.93	31.53	33.2	38.4	41.14	32.33	34.4
9.31	9.75	14.91	12.61	17.24	15.98	15.98	18.58	15.97	10.65	11.19	7.87	13.67
0.23	0.22	0.11	0.15	0.17	0.13	0.16	0.18	0.23	0.28	0.31	0.24	0.22
		0.27								1		
139.94	177.02	201.1	168.17	161.17	151.27	195.2	161.04	170.8	135.01	185.62	133.43	182.84
4.47	3.65	4.69	3.38	5.23	5.59	5.34	5.6	3.91	2.61	4.91	4.2	4.6
17.54	16.51	9.6	13.36	18.57	17.17	21.99	18.59	21.67	14.42	17.26	60.7	17.43
0.28	0.23			0.24	0.16	0.64	0.39	0.41	0.34	0.31	0.28	0.22
0.34			0.1	0.09	0.24	0.71	0.62	0.54	0.52	0.46		
0		0.08	0.05	0.04	0.11	0.15	0.22	0.22	0.03	0.04		
0.34			0.05	0.05	0.13	0.56	0.41	0.32	0.49	0.42		
5.8	6.65	9.97	7.66	10.58	8.43	10.12	9.58	8.82	6.52	7.03	4.77	8.7
										1		
0.29	0.29		0.1	0.23	0.18						110.22	0.29
14.55	9.55	28.64	23.82	15.32	19.85	13.6	19.52	18.08	17.92	16.47	11.7	10.13
	7.55	10.53	7.06	6.34	6.43							7.97
		0.02	0.03	0.17	0.16	0.25	0.39	0.27	0.27	0.33		
	442.28										716.18	467.26
150.5	176.91	146.66	130.19	166.46	147.22	178.96	156.29	173.28	156.07	174.89	286.47	186.9
7.38		12.49	11.09	11.84	10.59	10.7	11.41	9.78	8.24	7.83		
0		0.7	0.79	0	0	0.07	0.02	0	0	0		
0.2		0.36	0.29	0.36	0.3	0.33	0.34	0.29	0.23	0.23		
							8.24					219
236.67	282.5	275.33	312	291.74	276.09	296.67	288.4	330.45	283.33	273.33	262.33	276.67
78.83		106.67	74.5	89.46	75.26	87.33	78.44	83.14	96	103.17		
162.27	169.25		236.67	176.87	165.09	175.67	187.04	196.36	157.33	170	161.67	166.67

19.37	18	24.83	24.83	25.67	24.09	24.67	23.6	26.45	25.67	25.83	26.17	24
1.6												
8	7.7		7	8.4	8.5	7.75	8.17	8.1			7.83	7.97
8.24	7.72	8.48	8.2	8.42	8.16	8.01	8.21	8.16	8.8	8.28	8.17	7.83
										1		
										1		
										2		
										1		
										1		
										1		

HISTORY SHEET (WATER QUALITY)

			Water Year	:	2017 - 2018
Site	:	Ayodhya	**Code**	:	011-MGD1LKN
State	:	Uttar Pradesh	**District**		Faizabad
Basin	:	GANGA	**Independent River**	:	Ganga
Tributary	:	Ghagra	**Sub Tributary**	:	-
Sub-Sub Tributary	:	-	**Local River**	:	Ghagra
Division	:	Middle Ganga Division-I (MGD-I), Lucknow	**Sub-Division**	:	Upper Rapti Sub-Division, Gonda
Drainage Area	:	80889.0 Sq. Km.	**Bank**	:	Right
Latitude	:	26°47'0''	**Longitude**	:	82°12'0''
Current Zero of Gauge (m)	:	85			

CATEGORY		Opening Date	Closing Date
Gauge	:		
Discharge	:		
Sediment	:		
Water Quality	:		

Reduced Level	Opening Date	Closing Date
85.0	01/03/1977	30/07/2014
85.0	07/07/1970	01/03/1977
85.0	30/07/2014	-

Water Quality Datasheet (River Water Analysis) for the period : 2017 - 2018

Station Name: Ayodhya (011-MGD1LKN) | Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Ghagra | Sub Division: Upper Rapti Sub-Division, Gonda

PARAMETERS	01/06/2017	01/07/2017	01/08/2017	01/09/2017	03/10/2017	01/11/2017	01/12/2017	01/01/2018	01/02/2018	01/03/2018	02/04/2018	01/05/2018
Q (cumec)	310.77	1073.03	8437.35	4931.8	1610.67	981.71	667	215	248.56	115	109	277
CHEMICAL												
TOT(mgCaC(	115.94	136	132	127.87	140	136	152	148	160	184	154.79	151.79
HCO3(mg/L)	138.8	134.7	161.04	156	170.8	165.92	185.44	180.56	195.2	224.48	188.85	185.18
Na(mg/L)	7.8	7	5.7	5	6.5	6.2	7.5	7	9.2	10.7	10.5	8.6
SO4(mg/L)	14.1	13.4	12.8	12	12.8	12	12.6	12.2	15.6	18	17.5	18.8
H3-N(mgN/	0.24	0.2	0.18	0.16	0.2	0.18	0.24	0.22	0.26	0.3	0.26	0.28
NO2-N(mg/L												
CO3(mg/L)	1.3	1.3	0	0	0	0	0	0	0	0	0	0
Ca(mg/L)	34	32.68	30.96	29	34.4	33.54	37.84	36.98	41.28	44.72	42.68	38.15
SiO2(mg/L)	8.8	8.2	8	7.4	8	7.8	8.2	8	8.4	9	8.6	7.8
Mg(mg/L)	20.6	19.61	17.5	16.5	18.58	18.06	20.64	19.61	21.67	24.77	18.4	18.15
Cl(mg/L)	12	10	8	7	10	9	11	10	14	16	14	12
hen(mgCaC(	1.08	0	0	0	0	0	0	0	0	0	0	0
B(mg/L)	0.16	0.14	0.12	0.1	0.12	0.1	0.12	0.1	0.12	0.14	0.15	0.18
F(mg/L)	0.26	0.22	0.2	0.18	0.2	0.18	0.2	0.18	0.22	0.26	0.22	0.2
P-Tot(mgP/L	0.3	0.26	0.24	0.2	0.24	0.22	0.26	0.24	0.28	0.32	0.32	0.3
K(mg/L)	5.1	4.7	4	3.5	3.9	3.7	4.4	4.1	4.3	5	4.6	4.3
TRACE & TOXIC												
PESTICIDES												
BIOLOGICAL/BACTEOROLOGICAL												
MPN(MPN/1	10000	6500	2000	2500	900	600	500	800	1000	1000	1200	800
SAT%(Percen	5.49	5.88	8.23	6.27	6.47	7.06	8.23	8.62	7.84	6.86	7.45	5.1
COD(mg/L)	7	9	5	11	4	3	5	7	4	4	3	6
Chlf-a(µg/L)												
MPN(MPN/1	3000	2700	900	1200	300	200	100	300	400	300	500	200
OD3-27(mg/	2.4	3	1.37	2.55	1.18	1.18	1.17	1.37	1.37	1.76	0.98	4.94
PHYSICAL												
dour_Code(	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
egrees Celsi	29	29	25	28	27	22.5	15	15	13	20.5	22.5	25
L_GEN(pH ur	7.8	7.7	7.5	7.9	7.8	8	8.1	7.5	8.2	7.8	7.7	8

Water Quality Datasheet (River Water Analysis) for the period : 2017 - 2018

Station Name: Ayodhya (011-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Ghagra Sub Division: Upper Rapti Sub-Division, Gonda

_FLD(µmho/(											219	219
SS(mg/L)												
GEN(µmho/	248	230	200	180	240	220	250	250	260	320	310	260
Colour_Cod(-	Clear	Brown	Brown	Brown	Brown	Brown	Brown	Light Brown	Light Brown	Clear	Clear	Light Brown
H_FLD(pH un	8	8	8	8	7.5	8	8	7.5	7.5	8	8	8.5
TDS(mg/L)	150	138	120	108	144	132	150	150	154	200	198	155
CHEMICAL INDICES												
_Ca(mgCaCO	482.92	462.98	431.88	405.21	474.46	462.25	523.17	507.77	565.44	620.65	559.58	510.83
Total(mgCaC	193.17	185.19	172.75	162.08	189.78	184.9	209.27	203.11	226.18	248.26	223.83	204.33

Water Quality Summary (River Water Summary) for the period : 2017 - 2018

Station Name: Ayodhya (011-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Ghagra Sub Division: Upper Rapti Sub-Division, Gonda

PARAMETERS	No. of Observations	Maximum	Minimum	Mean	Flood (Jun-Oct)	Winter (Nov-Feb)	Summer (Mar-May)
Q (cumec)	365	19423.05	92.1	2003.9	4356.7	393.01	192.26
CHEMICAL							
Cl	12	16	7	11.08	9.4	11	14
SiO2	12	9	7.4	8.18	8.08	8.1	8.47
HCO3	12	224.48	134.7	173.91	152.27	181.78	199.5
F	12	0.26	0.18	0.21	0.21	0.2	0.23
P-Tot	12	0.32	0.2	0.27	0.25	0.25	0.31
B	12	0.18	0.1	0.13	0.13	0.11	0.16
Na	12	10.7	5	7.64	6.4	7.48	9.93
Alk-Phen	12	1.08	0	0.09	0.22	0	0
SO4	12	18.8	12	14.32	13.02	13.1	18.1
ALK-TOT	12	184	115.94	144.87	130.36	149	163.53
K	12	5.1	3.5	4.3	4.24	4.12	4.63
CO3	12	1.3	0	0.22	0.52	0	0
Mg	12	24.77	16.5	19.51	18.56	19.99	20.44
Ca	12	44.72	29	36.35	32.21	37.41	41.85
NH3-N	12	0.3	0.16	0.23	0.2	0.22	0.28
TRACE & TOXIC							
PESTICIDES							
BIOLOGICAL/BACTEOROLOGIC							
Tcol-MPN	12	10000	500	2316.67	4380	725	1000
COD	12	11	3	5.67	7.2	4.75	4.33
BOD3-27	12	4.94	0.98	1.94	2.1	1.27	2.56
FCol-MPN	12	3000	100	841.67	1620	250	333.33
DO_SAT%	12	8.62	5.1	6.96	6.47	7.94	6.47
PHYSICAL							
TDS	12	200	108	149.92	132	146.5	184.33
pH_GEN	12	8.2	7.5	7.83	7.74	7.95	7.83
EC_GEN	12	320	180	247.33	219.6	245	296.67
pH_FLD	12	8.5	7.5	7.92	7.9	7.75	8.17
Temp	12	29	13	22.62	27.6	16.38	22.67
EC_FLD	2	219	219	219			219
CHEMICAL INDICES							
HAR_Total	12	248.26	162.08	200.24	180.6	205.86	225.47
HAR_Ca	12	620.65	405.21	500.59	451.49	514.66	563.69

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Ayodhya (011-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Ghagra Sub Division: Upper Rapti Sub-Division, Gonda

PARAMETERS	Flood (Jun-Oct)											
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2007-2008
Q (cumec)	6028.39	6413.15	3980.8	5078.85	5684.13	3890.29	4664.92	3656.66	3112.94	2870.67	4356.7	500.59
BIOLOGICAL/BACTEOROLOGICAL												
BOD3-27	0.51	0.59	0.86	0.8	0.67	0.86	1.06	0.9	1.02	1.26	2.1	0.45
COD				3.5	13.6	4.6	5	4.2	5.2	6.58	7.2	
DO	7.6	7.18	7.53	7.36	7.61	7.64	7.25	6.82	6.78	6.86		7.69
DO_SAT%	95.92	90.1	96.59	94.83	95.21	97.17	88.19	81.33	80.92	84.35	6.47	81.21
FCol-MPN										9500	1620	
Tcol-MPN										5000	4380	
CHEMICAL												
ALK-TOT	235.71	149.2	136.8	121.6	113.94	120	123	105.6	100.8	115.2	130.36	285.28
Alk-Phen	5.78	5.73	1.99	3.19	0.81	3.19	6.97	1.59	3.98	2.39	0.22	9.6
B	0.06	0.15	0.13	0.13	0.32	0.15	0.17	0.21	0.17	0.17	0.13	0.13
CO3	6.96	6.9	2.4	3.84	0.97	3.84	9.48	1.92	4.8	2.88	0.52	12.39
Ca	33.08	33.6	36.8	31.02	26.43	29.6	28.42	24.12	29.96	30.65	32.21	44.39
Cl	9.37	10.93	14.7	13.63	9.7	13.63	13.48	13.63	8.52	8.81	9.4	35.22
F	0.07	0.13	0.15	0.16	0.13	0.13	0.16	0.19	0.27	0.25	0.21	0.12
Fe	0.14				0.14							0.2
HCO3	136.64	167.99	162.02	140.54	137.04	138.59	135.41	124.93	113.22	134.69	152.27	179.78
K	3.44	3.6	3.99	4.07	3.52	3.99	4.25	3.05	3.06	3.55	4.24	73.8
Mg	8.65	5.32	18.15	17.11	15.63	18.98	17.56	15.67	11.96	14.25	18.56	9.39
NH3-N			0.2	0.15	0.48	0.57	0.27	0.36	0.3	0.3	0.2	
NO2+NO3		0.1	0.08	0.09	0.7	0.59	0.59	0.56	0.47	0.44		
NO2-N	0.05	0.05	0.03	0.04	0.15	0.15	0.23	0.17	0.02	0.08		0.06
NO3-N		0.05	0.05	0.05	0.56	0.44	0.36	0.39	0.45	0.36		
Na	8	8.46	10.03	7.08	4.5	5.38	9.27	5.84	4.92	5.13	6.4	45.72
Ni												
P-Tot			0.12							0.28	0.25	
SO4	34.18	19.68	20.16	21.31	11.49	17.95	17.94	15.55	17.95	14.61	13.02	55.66
SiO2	9.68	8.88	6.76	5.44							8.08	16.98
o-PO4-P	0.01	0.01		0.08	0.09	0.31	0.3	0.5	0.27			0.07
CHEMICAL INDICES												
HAR_Ca											451.49	
HAR_Total	118.75	106.17	167.63	148.84	131.4	153.08	144.61	125.61	124.72	135.99	180.6	151.66
Na%	12.47	14.62	11.31	9.01	6.78	6.71	11.9	9.08	7.89	7.35		20.14
RSC	0.13	0.87	0.14	0	0	0	0	0	0	0		0.47
SAR	0.32	0.36	0.34	0.25	0.17	0.19	0.34	0.23	0.19	0.19		1.61
PESTICIDES												
PHYSICAL												
EC_FLD						162						
EC_GEN	285.53	295.2	236.73	222.6	185.4	179.17	225.14	278	238	193.4	219.6	368.47
Secchi	82.36	84	92.26	77.56	66.2	73.88	71.62	60.3	74.9	76.62		111.32

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Ayodhya (011-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Ghagra Sub Division: Upper Rapti Sub-Division, Gonda

TDS		194.8	168.73	134	112.4	108.34	148.03	162	141.4	121.4	132	
Temp	27.62	27.14	28.53	28.7	27.1	27.84	25.53	24.2	24.4	26.2	27.6	20.22
Turb										4.78		
pH_FLD	7.25	8	8.75	8.5	8.38	8.28	8				7.9	9.25
pH_GEN	8.03	7.93	8.01	7.89	7.9	8.01	8.37	8.17	8.34	8.21	7.74	8.01
TRACE & TOXIC												
As												
Cd												
Cr												
Cu												
Pb												
Zn												

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Ayodhya (011-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Ghagra Sub Division: Upper Rapti Sub-Division, Gonda

Winter (Nov-Feb)

2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
673.12	755.65	721.72	621.04	571.98	754.41	772.11	302.86
0.39	0.88	0.54	0.74	1.03	1.37	0.83	1.37
		3.25	10.25	6.25	8	4.25	7.75
7.56	7.89	7.78	7.56	7.4	6.32	7.01	7.06
81.05	82.1	83.08	80.59	75.29	65.22	67.78	71.85
157.68	150	121	157	128	127	133	166
8.73	1	0	0	0	5.98	9.96	2.99
0.15	0.14	0.16	0.16	0.16	0.17	0.22	0.18
10.52	1.2	0	0	0	7.2	12	3.6
31.86	37.85	29.65	36.15	29.7	30.55	43.85	39.6
12.51	15	14.02	14.02	15	14.02	11.45	10.03
0.14	0.18	0.14	0.15	0.17	0.18	0.26	0.29
170.98	180.56	147.62	191.54	156.16	140.3	137.86	195.2
3.33	5.57	4.89	4.11	4.59	3.42	2.92	4.79
11.23	20.62	15.98	20.14	18.29	19.08	17.28	20.11
	0.2	0.18	0.62	0.45	0.34	0.33	0.32
0.11	0.08	0.09	0.68	0.44	0.57	0.54	0.46
0.05	0.04	0.04	0.13	0.09	0.24	0.11	0
0.06	0.04	0.04	0.55	0.35	0.33	0.42	0.45
8.24	8.51	6.67	6.21	7.13	6.84	7.19	6.1
0.05	0.19						
19.34	23.4	18.84	12	18.24	16.8	26.88	18.48
6.94	6.5	6.12					
0.02	0.16	0.13	0.12	0.41	0.27	0.36	0.31
126.33	180.56	140.7	174.29	150.44	155.86	181.64	182.78
12.17	9.03	9.05	6.99	9.01	8.65	7.83	6.6
0.64	0	0	0	0	0	0	0
0.32	0.28	0.25	0.2	0.25	0.24	0.23	0.2
309	302.5	290	260	282.5	318.28	300	285
79.75	94.62	74.12	90.38	74.25	76.12	109.62	99

197	181.5	180	158	187.25	205.38	166.75	174
18.88	17.38	18.75	18.75	16.38	17.28	14.25	16.38
8.25	8.5	8.5	8.75	8.88	7		
8	8.38	8.02	8.03	8.07	8.38	8.51	8.3

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Ayodhya (011-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Ghagra Sub Division: Upper Rapti Sub-Division, Gonda

		Summer (Mar-May)										
2016-2017	2017-2018	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
341.4	393.01	254.73	209.41	320.54	346.19	369.64	511.38	321.14	712.75	114.35	232.31	192.26
1.82	1.27	0.46	0.39	0.99	0.85	0.85	0.98	0.98	0.98	1.31	2.5	2.56
8	4.75				23	12	14	6.33	5.33	7.33	6.67	4.33
7.25		7.39	7.45	7.44	7.6	7.45	7.78	6.53	7.19	6.93		
76.55	7.94	87.63	86.31	88.4	85.21	88.16	91.1	72.32	79.04	78.87	5.76	6.47
2333.33	250										1766.67	333.33
8000	725										8666.67	1000
141.33	149	378.68	166	150.67	128	170.67	150.67	161.33	134.67	161.58	144.74	163.53
0	0	8.05	4.98	5.31	3.98	6.64	11.95	9.3	13.28	3.98	0.33	0
0.18	0.11	0.19	0.13	0.15	0.16	0.17	0.18	0.19	0.2	0.18	0.17	0.16
0.34	0	9.7	6	6.4	4.8	8	14.4	11.2	16	4.8	1.1	0
35.69	37.41	42.67	31	35	30.93	33.27	30.73	33.8	39	39.6	37.33	41.85
10	11	16.57	13.37	17.28	17.28	18.58	19.88	14.67	11.36	11.31	12.67	14
0.26	0.2	0.09	0.16	0.18	0.14	0.16	0.19	0.21	0.27	0.34	0.15	0.23
		0.27								1		
125.95	181.78	221.02	190.32	170.8	146.4	191.95	154.53	174.05	131.76	187.37	143.63	199.5
4.59	4.13	4.56	4.04	5.34	5.87	6.65	5.6	4.04	2.87	5.18	5.43	4.63
18.76	20	9.6	14.09	20.29	17.54	23.37	19.93	22.36	16.85	19.21	19.6	20.44
0.29	0.23			0.22	0.16	0.66	0.39	0.37	0.35	0.32	0.27	0.28
0.34			0.1	0.81	0.31	0.56	0.59	0.59	0.52	0.44		
0		0.08	0.05	0.04	0.13	0.14	0.21	0.19	0.04	0		
0.34			0.05	0.77	0.18	0.42	0.39	0.4	0.48	0.43		
6.17	7.48	9.2	9.43	10.5	8.05	10.5	10.12	8.82	6.82	7.18	7.93	9.93
										1		
0.33	0.25		0.07	0.25							0.31	0.31
14.98	13.1	28.64	27.68	22.24	20.32	13.28	19.84	18.4	17.76	16.63	15.4	18.1
	8.1	10.53	7.07	6.47	6.57							8.47
		0.02	0.06	0.25	0.16	0.24	0.38	0.28	0.27	0.36		
	514.66										511.39	563.69
166.27	205.86	146.66	136.23	172.04	150.4	180.54	159.86	177.65	167.7	179.16	204.56	225.47
7.16		11.65	12.73	11.42	9.98	10.87	11.76	9.55	7.92	7.88		
0		1.03	0.64	0	0	0	0.02	0	0	0		
0.2		0.33	0.35	0.35	0.29	0.34	0.35	0.29	0.23	0.24		
												219
253.33	245	277.33	325	320	286.67	300	293.33	340.45	286.67	300	265.33	296.67
90.3		106.67	77.5	87.5	77.33	83.17	76.83	84.57	97.5	99		

169.62	146.5		235.33	189	168.33	173.33	192	203.45	158.33	187	162.33	184.33
16.38	16.38	24.2	22.83	24.33	21	24	23.33	20.61	20	21.83	23.33	22.67
3.6												
8	7.75		9	8.5	8.67	7.82	9	7			7.83	8.17
8.22	7.95	8.15	8.09	8.19	8.23	8.18	7.96	8.33	8.82	8.35	8.13	7.83
										1		
										1		
										2		
										1		
										1		
										1		

HISTORY SHEET (WATER QUALITY)

		Water Year	: 2017 - 2018
Site	: Turtipar	**Code**	: 012-MGD1LKN
State	: Uttar Pradesh	**District**	Ballia
Basin	: GANGA	**Independent River**	: Ganga
Tributary	: Ghagra	**Sub Tributary**	: -
Sub-Sub Tributary	: -	**Local River**	: Ghagra
Division	: Middle Ganga Division-I (MGD-I), Lucknow	**Sub-Division**	: Lower Rapti Ghagra Sub-Division,
Drainage Area	: 113088.0 Sq. Km.	**Bank**	: Right
Latitude	: 26°10'0''	**Longitude**	: 83°53'0''
Current Zero of Gauge (m)	: 58.07		

CATEGORY	Opening Date	Closing Date
Gauge :		
Discharge :		
Sediment :		
Water Quality :		

Reduced Level	Opening Date	Closing Date
58.07	22/11/1962	14/02/1963
58.07	30/07/2014	-
58.07	14/02/1963	30/07/2014

Water Quality Datasheet (River Water Analysis) for the period : 2017 - 2018

Station Name: Turtipar(012-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Ghagra Sub Division: Lower Rapti Ghagra Sub-Division, Gorakhpur

PARAMETERS	01/06/2017	01/07/2017	01/08/2017	01/09/2017	03/10/2017	01/11/2017	01/12/2017	01/01/2018	01/02/2018	05/03/2018	02/04/2018	01/05/2018
Q (cumec)	305.09	590.93	8798.01	13869.29	2876.97	1632.81	1288.44	427.02	450.93	305.48	304.26	441.92
CHEMICAL												
CO3(mg/L)	0.5	0.5	0	0	0	0	0	0	0	0	0	0
P-Tot(mgP/L)	0.38	0.36	0.32	0.32	0.34	0.36	0.34	0.36	0.38	0.42	0.36	0.32
Ca(mg/L)	50	48.16	39.56	38	41.28	43	42.14	44.72	48.16	53.32	48.26	44.52
Phen(mgCaCO	0.41	0	0	0	0	0	0	0	0	0	0	0
F(mg/L)	0.35	0.33	0.3	0.28	0.3	0.32	0.28	0.18	0.34	0.36	0.32	0.28
SiO2(mg/L)	7	6.8	6.2	6	6.4	6.5	6.2	6.6	7	7.5	7.2	6.7
B(mg/L)	0.2	0.2	0.18	0.16	0.18	0.18	0.16	0.18	0.2	0.24	0.22	0.18
HCO3(mg/L)	171.6	167.5	190.32	186	195.2	200.08	195.2	214.72	224.48	248.88	228.18	232.15
-TOT(mgCaCO	141.49	168	156	152.46	160	164	160	176	184	204	187.03	190.29
Mg(mg/L)	28	26.83	21.67	20.6	22.7	23.74	23.22	25.8	26.83	27.86	24.15	22.4
Na(mg/L)	12.8	12.5	8.2	7.4	8.2	9	8	8.6	9	11.1	10.5	9
K(mg/L)	7	6.8	6.1	5.7	6	6.4	6.2	7	7.4	8	7.6	6.2
NH3-N(mgN/L	0.32	0.2	0.24	0.22	0.26	0.28	0.25	0.28	0.3	0.32	0.28	0.26
SO4(mg/L)	25.2	26	24.2	22.4	23	23.5	22.4	25.2	26.8	27.2	25.5	25
Cl(mg/L)	21	19	12	10	12	14	12	14	15	17	15	14
NO2-N(mg/L)												
TRACE & TOXIC												
PESTICIDES												
BIOLOGICAL/BACTEOROLOGICAL												
Chlf-a(µg/L)												
OD3-27(mg/L	3.51	3.9	2.36	3.33	1.76	0.98	0.98	1.18	1.76	2.15	1.98	2.16
MPN(MPN/10	2700	3500	1500	1000	300	100	100	400	300	500	400	400
MPN(MPN/10	5000	9000	4000	2000	1000	600	400	800	1100	1200	1200	1100
COD(mg/L)	8	10	8	14	5	3	4	8	6	6	5	6
SAT%(Percent	5.68	5.49	8.04	6.08	6.47	7.25	8.04	8.43	7.25	6.27	6.08	5.29
PHYSICAL												
_GEN(µmho/c	230	230	190	180	230	240	230	270	280	330	330	300
Colour_Cod(-)	Clear	Brown	Brown	Brown	Clear	Light Brown	Light Brown	Light Brown	Clear	Clear	Clear	Clear
SS(mg/L)												

Water Quality Datasheet (River Water Analysis) for the period : 2017 - 2018

Station Name: Turtipar(012-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Ghagra Sub Division: Lower Rapti Ghagra Sub-Division, Gorakhpur

H_FLD(pH uni	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	8.2	7	8	8.5
Degrees Celsiu	28	32.5	31.5	31.5	30	26.5	20.5	16	17	24.7	25	29.3
H_GEN(pH un	7.6	7.7	7.7	7.8	7.8	8.1	8.1	8.1	8.2	7.9	7.8	8.1
TDS(mg/L)	140	136	115	110	140	145	133	165	170	202	200	180
Odour_Code(-	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
_FLD(µmho/c									312	325	318	318
CHEMICAL INDICES												
_Ca(mgCaCO	695.83	669.35	547.52	524.58	571.88	596.29	584.08	627.08	669.35	729.54	653.65	603.75
Total(mgCaC	278.33	267.74	219.01	209.83	228.75	238.52	233.63	250.83	267.74	291.82	261.46	241.5

Water Quality Summary (River Water Summary) for the period : 2017 - 2018

Station Name: Turtipar(012-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Ghagra Sub Division: Lower Rapti Ghagra Sub-Division, Gorakhpur

PARAMETERS	No. of Observations	Maximum	Minimum	Mean	Flood (Jun-Oct)	Winter (Nov-Feb)	Summer (Mar-May)
Q (cumec)	365	17277.79	239.07	2826	5942.65	759.67	338.08
CHEMICAL							
Cl	12	21	10	14.58	14.8	13.75	15.33
HCO3	12	248.88	167.5	204.53	182.12	208.62	236.4
SiO2	12	7.5	6	6.67	6.48	6.57	7.13
F	12	0.36	0.18	0.3	0.31	0.28	0.32
P-Tot	12	0.42	0.32	0.35	0.34	0.36	0.37
B	12	0.24	0.16	0.19	0.18	0.18	0.21
Na	12	12.8	7.4	9.52	9.82	8.65	10.2
Alk-Phen	12	0.41	0	0.03	0.08	0	0
SO4	12	27.2	22.4	24.7	24.16	24.47	25.9
ALK-TOT	12	204	141.49	170.27	155.59	171	193.77
K	12	8	5.7	6.7	6.32	6.75	7.27
CO3	12	0.5	0	0.08	0.2	0	0
Mg	12	28	20.6	24.48	23.96	24.9	24.8
Ca	12	53.32	38	45.09	43.4	44.51	48.7
NH3-N	12	0.32	0.2	0.27	0.25	0.28	0.29
TRACE & TOXIC							
PESTICIDES							
BIOLOGICAL/BACTEOROLOGICAL							
Tcol-MPN	12	9000	400	2283.33	4200	725	1166.67
COD	12	14	3	6.92	9	5.25	5.67
BOD3-27	12	3.9	0.98	2.17	2.97	1.22	2.1
FCol-MPN	12	3500	100	933.33	1800	225	433.33
DO_SAT%	12	8.43	5.29	6.7	6.35	7.74	5.88
PHYSICAL							
TDS	12	202	110	153	128.2	153.25	194
pH_GEN	12	8.2	7.6	7.91	7.72	8.12	7.93
EC_GEN	12	330	180	253.33	212	255	320
Temp	12	32.5	16	26.04	30.7	20	26.33
pH_FLD	12	8.5	7	7.64	7.5	7.68	7.83
EC_FLD	4	325	312	318.25		312	320.33
CHEMICAL INDICES							
HAR_Total	12	291.82	209.83	249.1	240.73	247.68	264.93
HAR_Ca	12	729.54	524.58	622.74	601.83	619.2	662.31

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Turtipar(012-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Ghagra Sub Division: Lower Rapti Ghagra Sub-Division, Gorakhpur

PARAMETERS	Flood (Jun-Oct)											
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2007-2008
Q (cumec)	5854.02	7279.27	5091.84	5193.58	3442.91	4618.56	7897.81	5649.45	4513.59	5357.15	5942.65	801.94
BIOLOGICAL/BACTEOROLOGICAL												
BOD3-27			0.92	0.89	0.67	0.94	0.95	0.98	1.18	1.28	2.97	
COD				4.5	13.2	4	4.6	4.6	4.8	6.5	9	
DO	7.14	7.18	7.39	7.69	7.48	7.45	7.26	7.21	6.78	6.88		7.25
DO_SAT%	94.56	93.35	98.22	99.98	99.33	98.28	85.7	93.78	90.98	89.83	6.35	82.16
FCol-MPN										7500	1800	
Tcol-MPN										10500	4200	
CHEMICAL												
ALK-TOT	252.22	174.43	137	128.8	111.7	120.8	134.4	107.2	109	115.2	155.59	249.96
Alk-Phen	4.83	5.73	2.06	3.19	1.59	3.98	3.98	5.58	3.98	2.39	0.08	9.71
B	0.07	0.15	0.13	0.13	0.32	0.15	0.17	0.22	0.17	0.17	0.18	0.13
CO3	5.82	6.9	2.48	3.84	1.92	4.8	4.8	6.72	3.93	2.88	0.2	11.7
Ca	33.08	33.6	37.74	30.24	27.88	29.92	28.52	24.8	30.39	31.3	43.4	41
Cl	9.37	10.93	14.7	13.63	9.73	12.85	13.63	14.41	8.78	9.59	14.8	14.91
F	0.15	0.16	0.15	0.14	0.16	0.13	0.16	0.16	0.27	0.27	0.31	0.19
Fe	0.14				0.13							0.23
HCO3	147.86	167.99	162.1	149.33	132.37	137.62	154.21	117.12	119.47	134.69	182.12	186.35
K	3.52	3.52	4.22	4.3	3.6	4.07	4.3	3.83	3.22	3.67	6.32	3.91
Mg	8.65	5.81	18.69	17.33	15.07	19.37	17.3	15.67	12	14.64	23.96	7.78
NH3-N			0.16	0.17	0.52	0.56	0.27	0.36	0.74	0.31	0.25	
NO2+NO3		0.11	0.08	0.1	0.75	0.61	0.6	0.51	0.47	0.46		
NO2-N	0.05	0.05	0.03	0.04	0.14	0.15	0.23	0.16	0.03	0.09		0.06
NO3-N		0.06	0.05	0.06	0.61	0.46	0.37	0.35	0.44	0.37		
Na	8.1	8.51	10.3	8.33	4.55	5.61	9.15	5.84	4.95	5.39	9.82	8.45
Ni												
P-Tot			0.13							0.28	0.34	
SO4	38.11	21.22	20.12	20.45	14.59	17.76	15.55	16.32	18.03	14.74	24.16	33.36
SiO2	6.28	7.96	6.57	5.08							6.48	7.5
o-PO4-P	0.03	0.02	0.04	0.09	0.1	0.32	0.29	0.5	0.27			0.03
CHEMICAL INDICES												
HAR_Ca											601.83	
HAR_Total	118.75	108.2	172.56	147.79	132.48	155.5	143.39	127.31	125.51	139.25	240.73	134.9
Na%	12.59	14.45	11.33	10.32	6.77	6.92	11.77	8.9	7.87	7.46		11.66
RSC	0.27	0.83	0.11	0	0	0	0	0	0	0		0.76
SAR	0.32	0.36	0.34	0.29	0.17	0.19	0.33	0.23	0.2	0.2		0.32
PESTICIDES												
PHYSICAL												
EC_FLD						183						
EC_GEN	275	267.2	279.17	252.11	197.67	206.61	237.11	238	238	202.4	212	254
SS												

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Turtipar(012-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Ghagra Sub Division: Lower Rapti Ghagra Sub-Division, Gorakhpur

Secchi	83.26	84	94.5	75.17	69.95	74.76	71.66	62	75.8	78.26		102.8
TDS		176.6	199.28	152.03	119.95	120.95	158.24	147.8	144.2	126.2	128.2	
Temp	30.21	29.1	30.47	29.3	30.41	30.21	23.88	29.2	30.9	29.4	30.7	21.48
Turb										4.34		
pH_FLD	7.2	7.76	8	7.67	7.5	7.65	7.67				7.5	8
pH_GEN	8	7.97	8.07	7.94	7.86	8.19	8.27	8.39	8.25	8.29	7.72	8.11
TRACE & TOXIC												
As												
Cd												
Cr												
Cu												
Pb												
Zn												

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Turtipar(012-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Ghagra Sub Division: Lower Rapti Ghagra Sub-Division, Gorakhpur

Winter (Nov-Feb)

2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
911.44	2168.77	957.88	481.68	710.94	1170.5	1091.21	537.33
	1.12	0.54	0.69	0.88	1.03	1.03	1.27
		3.75	9.25	5.5	5.25	4.75	7.25
7.24	7.55	7.5	7.49	7.88	7.3	7.3	7.15
80.29	81.92	84.25	89.86	90.89	81.53	80.37	83.1
167.54	152	117	160	132	127	153	173
3.83	4.98	0	0	0	5.98	11.95	7.97
0.14	0.15	0.16	0.16	0.17	0.17	0.22	0.18
4.61	6	0	0	0	7.2	14.4	9.6
32.63	43	28.8	36.6	29.7	31.4	49.85	40.4
14.49	15.97	14.02	14.02	15	15.98	12.96	10.03
0.14	0.18	0.15	0.16	0.16	0.19	0.29	0.3
195.02	173.24	142.74	195.2	161.04	140.3	157.38	191.54
3.33	5.57	4.79	4.01	4.59	3.81	2.86	4.89
11.94	18.07	16.52	20.62	18.8	19.83	15.7	20.66
	0.2	0.16	0.63	0.46	0.34	0.32	0.32
0.11	0.76	0.08	0.59	0.44	0.56	0.51	0.45
0.06	0.04	0.04	0.14	0.1	0.23	0.09	0
0.06	0.72	0.04	0.46	0.34	0.33	0.42	0.45
8.35	9.89	6.61	6.09	7.3	7.65	7.42	6.21
0.07	0.18						
18.14	25.56	19.2	8.84	14.69	16.56	38.98	18.48
6.47	6.5	5.95					
0.03	0.15	0.13	0.12	0.4	0.28	0.37	0.31
131.36	182.8	140.85	177.44	152.59	161.15	190.06	187.06
12.09	10.28	8.95	6.76	9.12	9.34	7.8	6.59
0.74	0	0	0	0	0	0	0
0.32	0.32	0.24	0.2	0.26	0.27	0.24	0.2
302.06	312.5	307.5	272.5	290	338.28	330	290

81.16	107.5	72	91.5	74.25	78.02	124.62	101
180.26	192.75	185	163.25	192.25	218.97	181.5	178
20.6	19.38	21.38	24.62	22.75	21.02	20.5	23
8	8	7.62	7.62	7.5	7.5		
8.02	8.35	8.07	8	7.91	8.41	8.44	8.36

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Turtipar(012-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Ghagra Sub Division: Lower Rapti Ghagra Sub-Division, Gorakhpur

		Summer (Mar-May)										
2016-2017	2017-2018	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
587.1	759.67	276.8	295.12	498.25	383.62	276.07	352.98	547.1	1147.99	231.37	343.25	338.08
1.34	1.23		0.39	1.01	0.78	0.85	1.11	1.11	1.31	1.44	1.95	2.1
6.67	5.25				12.67	8	21.33	7.33	5.67	8.67	6	5.67
7.06		7.07	7.31	7.4	7.5	7.45	8.04	7.32	7.06	6.8		
82.27	7.74	86.1	85.27	92.93	87.48	89.15	91.27	83.16	81.17	83.3	5.76	5.88
3500	225										1633.33	433.33
5400	725										3833.33	1166.67
144	171	378.68	190	152	128	173.34	158.67	158	142.67	167.85	157.82	193.77
3.98	0	8.05	9.96	7.97	3.32	2.66	10.62	11.95	9.3	2.56	0.19	0
0.18	0.18	0.19	0.12	0.15	0.17	0.17	0.18	0.21	0.2	0.18	0.2	0.21
3.1	0	9.7	12	9.6	4	3.2	12.8	9.99	11.2	3.08	1.17	0
33.32	44.5	42.67	29.27	36.2	32.13	34.4	33.27	34.69	38.4	41.2	43.09	48.7
10	13.75	18.22	12.66	17.28	17.28	15.98	19.88	17.17	13.96	13.32	15.67	15.33
0.25	0.28	0.2	0.14	0.2	0.14	0.16	0.19	0.2	0.29	0.34	0.3	0.32
		0.28								1		
154.33	208.62	221.02	207.4	165.92	148.03	204.97	167.55	174.68	151.28	198.51	156.6	236.4
4.72	6.75	4.43	3.78	5.08	6.13	5.6	5.73	4.66	4.04	5.19	5.97	7.27
18.99	24.9	11.22	13.73	19.6	16.85	24.38	20.61	21.96	17.9	20.66	22.06	24.8
0.29	0.28			0.22	0.16	0.68	0.41	0.37	0.35	0.33	0.31	0.29
0.37			0.1	0.08	0.3	0.57	0.62	0.57	0.54	0.54		
0.04		0.08	0.05	0.04	0.13	0.15	0.23	0.18	0.05	0.1		
0.33			0.05	0.05	0.16	0.42	0.39	0.39	0.49	0.43		
6.35	8.65	9.43	11.04	12.19	9.05	11.58	10.66	10.19	7.51	8.08	9.87	10.2
										1		
0.31	0.36		0.06	0.26							0.36	0.37
15	24.48	35.36	22.56	17.17	20.32	9.6	20.32	18.83	17.44	17.26	21.2	25.9
	6.58	8.4	7.63	6.27	6.23							7.13
		0.03	0.06	0.25	0.18	0.25	0.37	0.3	0.27	0.36		
	619.2										586.74	662.31
163.4	247.68	153.41	130.37	172.18	150.53	187.59	169.06	178.63	170.59	189.06	234.7	264.93
7.42		11.47	15.15	13	11.07	11.45	11.76	10.79	8.51	8.3		
0		0.89	1.21	0	0	0.03	0.05	0	0	0		
0.21		0.33	0.42	0.41	0.32	0.37	0.36	0.33	0.25	0.26		
	312										14	320.33
246.67	255	264	327	318.7	333.33	326.67	296.67	374.09	300	320	285.67	320
											9	

84.57		106.67	73.17	90.5	80.33	86	83.17	87.3	96	103		
165.26	153.25		227.33	190	191.33	187	195	230	168.33	197	173.67	194
20.95	20	25.67	22.83	27.02	23.17	24.83	22	22.45	22.33	25.67	24.17	26.33
3.07												
7.5	7.67		8	8	7.5	7.83	7.5	7.5			7.83	7.83
8.29	8.13	8.2	8.15	8.29	8.23	8.06	8.22	8.43	8.74	8.29	8.2	7.93
										1		
										1		
										2		
										1		
										1		
										1		

HISTORY SHEET (WATER QUALITY)

			Water Year	:	2017 - 2018
Site	:	Bansi	**Code**	:	019-MGD1LKN
State	:	Uttar Pradesh	**District**		Sidharthnagar
Basin	:	GANGA	**Independent River**	:	Ganga
Tributary	:	Ghagra	**Sub Tributary**	:	Rapti
Sub-Sub Tributary	:	-	**Local River**	:	Rapti
Division	:	Middle Ganga Division-I (MGD-I), Lucknow	**Sub-Division**	:	Lower Rapti Ghagra Sub-Division,
Drainage Area	:	9575.0 Sq. Km.	**Bank**	:	Left
Latitude	:	27°11'0''	**Longitude**	:	82°58'0''
Current Zero of Gauge (m)	:	0			

CATEGORY		Opening Date	Closing Date
Gauge	:	16/06/1971	
Discharge	:		
Sediment	:		
Water Quality	:	01/07/2014	

Reduced Level	Opening Date	Closing Date
77.285	01/06/1971	30/06/1974
77.28	23/05/2014	31/05/2015
0.0	18/03/2017	-

Water Quality Datasheet (River Water Analysis) for the period : 2017 - 2018

Station Name: Bansi (019-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Rapti Sub Division: Lower Rapti Ghagra Sub-Division, Gorakhpur

PARAMETERS	01/06/2017	01/07/2017	01/08/2017	01/09/2017	03/10/2017	01/11/2017	01/12/2017	01/01/2018	01/02/2018	05/03/2018	02/04/2018	01/05/2018
Q (cumec)	87.52	87.98	219.83	559.45	329.18	128.75	90.66	73.43	134.48	72.8	61.71	62.49
CHEMICAL												
NH3-N(mgN/L	0.28	0.22	0.2	0.22	0.2	0.22	0.2	0.22	0.18	0.22	0.26	0.32
SO4(mg/L)	17	8.4	14.2	15.8	15.2	16	15.8	16.4	14	17.8	18.2	20.2
-TOT(mgCaCO	117.74	112.17	156	168.03	156	164	158	164	160	192	185.51	203.65
K(mg/L)	6.9	2.9	5.2	6.4	6	6.4	6.2	6.4	6	6.8	7.2	7.8
P-Tot(mgP/L)	0.36	0.26	0.28	0.32	0.28	0.3	0.28	0.3	0.26	0.3	0.32	0.28
NO2-N(mg/L)												
HCO3(mg/L)	141	111.3	190.32	205	190.32	200.08	192.76	200.08	195.2	234.24	226.32	248.45
B(mg/L)	0.2	0.1	0.12	0.14	0.12	0.14	0.12	0.14	0.12	0.14	0.12	0.14
Phen(mgCaCO	1.08	0.08	0	0	0	0	0	0	0	0	0	0
F(mg/L)	0.3	0.18	0.2	0.24	0.22	0.25	0.23	0.24	0.2	0.24	0.26	0.22
Cl(mg/L)	14	5	10	14	12	14	12	14	12	15	16	18
Mg(mg/L)	21.7	12.38	17.54	19.6	17.54	18.58	18.06	20.64	19.61	22.7	23.8	24.15
SiO2(mg/L)	9.2	8.4	8	8.8	8	8.4	8.2	8.6	8	9.2	8.5	8.4
CO3(mg/L)	1.3	0.8	0	0	0	0	0	0	0	0	0	0
Ca(mg/L)	36	27.52	29.24	33	29.24	32.68	30.1	30.96	27.52	39.56	34.75	38.61
Na(mg/L)	9.1	3.1	7.2	9.5	8.2	9	7.8	8.8	8	9.2	9.8	9.2
TRACE & TOXIC												
PESTICIDES												
BIOLOGICAL/BACTEOROLOGIC												
MPN(MPN/10	2700	2500	2200	2500	1200	900	1000	800	900	800	1000	1100
Chlf-a(µg/L)												
COD(mg/L)	20	9	10	14	5	4	9	8	7	7	4	12
MPN(MPN/10	1500	1400	1000	700	500	300	400	300	300	300	300	400
BOD3-27(mg/L	3.54	3.9	2.16	3.7	2.16	1.76	2.16	1.96	1.37	2.16	1.96	4.29
SAT%(Percent	4.9	5.1	9.21	5.1	6.08	7.25	7.45	8.04	7.45	7.06	6.08	3.92
PHYSICAL												
Odour_Code(-	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free		odour free	odour free	odour free
_FLD(µmho/c									312	328	207	291
_GEN(µmho/c	330	220	240	290	260	290	270	280	260	320	360	310

Water Quality Datasheet (River Water Analysis) for the period : 2017 - 2018

Station Name: Bansi (019-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Rapti Sub Division: Lower Rapti Ghagra Sub-Division, Gorakhpur

H_FLD(pH uni	8	7.9	7.5	7.5	7.5	8	8	8	7	7.4	8.1	8
TDS(mg/L)	202	134	145	174	155	175	165	170	155	195	220	185
Degrees Celsiu	28	30	31	31	31	27	18	18	17	25	27	26
H_GEN(pH uni	8.1	7.6	7.8	7.8	8	8.2	8.2	8.2	8.2	8.1	8.1	8.1
Colour_Cod(-)	Clear	Clear	Brown	Brown	Brown	Clear	Clear	Clear		Clear	Clear	Clear
SS(mg/L)												
CHEMICAL INDICES												
_Ca(mgCaCO	510.62	364.04	414.21	466.25	414.21	456.54	426.42	451.5	409.23	553.96	510.73	553.12
_Total(mgCaC	204.25	145.62	165.68	186.5	165.68	182.62	170.57	180.6	163.69	221.58	204.29	221.25

Water Quality Summary (River Water Summary) for the period : 2017 - 2018

Station Name: Bansi (019-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Rapti Sub Division: Lower Rapti Ghagra Sub-Division, Gorakhpur

PARAMETERS	No. of Observations	Maximum	Minimum	Mean	Flood (Jun-Oct)	Winter (Nov-Feb)	Summer (Mar-May)
Q (cumec)	365	1296.86	39.69	193.78	348.38	93.93	66.89
CHEMICAL							
Cl	12	18	5	13	11	13	16.33
HCO3	12	248.45	111.3	194.59	167.59	197.03	236.34
SiO2	12	9.2	8	8.48	8.48	8.3	8.7
F	12	0.3	0.18	0.23	0.23	0.23	0.24
P-Tot	12	0.36	0.26	0.29	0.3	0.29	0.3
B	12	0.2	0.1	0.13	0.14	0.13	0.13
Na	12	9.8	3.1	8.24	7.42	8.4	9.4
Alk-Phen	12	1.08	0	0.1	0.23	0	0
SO4	12	20.2	8.4	15.75	14.12	15.55	18.73
ALK-TOT	12	203.65	112.17	161.42	141.99	161.5	193.72
K	12	7.8	2.9	6.18	5.48	6.25	7.27
CO3	12	1.3	0	0.17	0.42	0	0
Mg	12	24.15	12.38	19.69	17.75	19.22	23.55
Ca	12	39.56	27.52	32.43	31	30.32	37.64
NH3-N	12	0.32	0.18	0.23	0.22	0.21	0.27
TRACE & TOXIC							
PESTICIDES							
BIOLOGICAL/BACTEOROLOGICAL							
Tcol-MPN	12	2700	800	1466.67	2220	900	966.67
COD	12	20	4	9.08	11.6	7	7.67
BOD3-27	12	4.29	1.37	2.59	3.09	1.81	2.8
FCol-MPN	12	1500	300	616.67	1020	325	333.33
DO_SAT%	12	9.21	3.92	6.47	6.08	7.55	5.69
PHYSICAL							
TDS	12	220	134	172.92	162	166.25	200
pH_GEN	12	8.2	7.6	8.03	7.86	8.2	8.1
EC_GEN	12	360	220	285.83	268	275	330
Temp	12	31	17	25.75	30.2	20	26
pH_FLD	12	8.1	7	7.74	7.68	7.75	7.83
EC_FLD	4	328	207	284.5		312	275.33
CHEMICAL INDICES							
HAR_Total	12	221.58	145.62	184.36	173.55	174.37	215.71
HAR_Ca	12	553.96	364.04	460.9	433.87	435.92	539.27

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Bansi (019-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Rapti Sub Division: Lower Rapti Ghagra Sub-Division, Gorakhpur

PARAMETERS	Flood (Jun-Oct)											
	2015	2016	2017	2015-2016	2016-2017	2017-2018	2016	2017	2018	2014	2014-2015	2015
Q (cumec)	153.84	220.47	348.38	101.62	79.35	93.93	13.05	55.88	66.89			
BIOLOGICAL/BACTEOROLOGICAL												
BOD3-27	1.57	1.58	3.09	1.28	1.38	1.81	1.44	2.07	2.8	0.81	0.88	1.18
COD	7.6	6.67	11.6	7.5	7.75	7	8.33	9.67	7.67	4.5	5.75	6.33
DO	6.63	6.84		7.11	7.25		6.86			6.67	7.1	7.06
DO_SAT%	88.27	91.44	6.08	78.97	65.29	7.55	84.05	5.5	5.69	86.67	76.6	87.08
FCol-MPN		1750	1020		4250	325		1500	333.33			
Tcol-MPN		8000	2220		7300	900		2233.33	966.67			
CHEMICAL												
ALK-TOT	129.6	127.2	141.99	183	137.34	161.5	173.43	146.42	193.72	100	171.07	156
Alk-Phen	5.58	3.19	0.23	9.96	3.25	0	5.11	0.91	0	4.98	9.99	9.3
B	0.18	0.18	0.14	0.18	0.18	0.13	0.18	0.19	0.13	0.21	0.21	0.2
CO3	6.72	3.84	0.42	12	3.43	0	6.16	1.37	0	6	12.03	11.2
Ca	34.32	30.95	31	42.6	32.61	30.32	38.06	35.19	37.64	19.4	49.56	38.47
Cl	10.79	9.61	11	10.47	10	13	12.56	12.33	16.33	15	12.51	15.38
F	0.28	0.27	0.23	0.3	0.26	0.23	0.32	0.28	0.24	0.17	0.23	0.24
Fe							1				0	
HCO3	144.45	147.38	167.59	198.86	156.53	197.03	199.07	145	236.34	109.8	184.24	167.55
K	3.87	4.08	5.48	5.08	4.71	6.25	5.7	6.3	7.27	4.3	3.45	4.69
Mg	15.67	15.47	17.75	21.93	19.4	19.22	23.62	21.23	23.55	16.49	20.03	18.91
NH3-N	0.31	0.31	0.22	0.33	0.3	0.21	0.32	0.28	0.27	0.33	0.31	0.34
NO2+NO3	0.5	0.47		0.47	0.34		0.54			0.37	0.44	0.49
NO2-N	0.04	0.08		0	0		0.1			0.02	0.05	0.02
NO3-N	0.46	0.39		0.47	0.34		0.43			0.35	0.39	0.46
Na	6.35	5.87	7.42	6.5	6.3	8.4	7.69	8.07	9.4	6.5	7.29	8.43
Ni							1					
P-Tot		0.3	0.3		0.33	0.29		0.35	0.3			
SO4	18.34	12.36	14.12	18.84	15.2	15.55	17.26	16.73	18.73	14.28	24.8	15.2
SiO2			8.48			8.3			8.7			
o-PO4-P	0.27			0.33			0.37			0.41	0.32	0.25
CHEMICAL INDICES												
HAR_Ca			433.87		451.67	435.92		499.24	539.27			
HAR_Total	151.11	141.85	173.55	197.88	164.65	174.37	193.55	199.69	215.71	117.22	207.54	174.97
Na%	8.36	7.98		6.53	7.63		7.73			10.29	7.02	9.23
RSC	0	0		0	0		0			0	0	0
SAR	0.23	0.21		0.2	0.22		0.24			0.26	0.22	0.28
PESTICIDES												
PHYSICAL												
EC_FLD						312			275.33			
EC_GEN	262	215.6	268	297.5	290.61	275	306.67	310.67	330	280	355	360
Secchi	85.8	77.38		106.5	81.7		94.67			48.5	123.62	96.17

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Bansi (019-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Rapti Sub Division: Lower Rapti Ghagra Sub-Division, Gorakhpur

TDS	155	135.8	162	183.25	174.86	166.25	191	189.67	200	169	197.5	200.33
Temp	30.4	30.6	30.2	20.5	20.64	20	25.67	25	26	29	19.25	26
Turb		4.1			1.3							
pH_FLD			7.68		8	7.75		8	7.83			
pH_GEN	8.42	8.29	7.86	8.41	8.29	8.2	8.32	8.23	8.1	8.37	8.56	8.79
TRACE & TOXIC												
Al											0	
As							1					
Cd							1					
Cr							2					
Cu							1					
Pb							1					
Zn							1					

HISTORY SHEET (WATER QUALITY)

			Water Year	:	2017 - 2018
Site	:	Regauli	**Code**	:	022-MGD1LKN
State	:	Uttar Pradesh	**District**		Gorakhpur
Basin	:	GANGA	**Independent River**	:	Ganga
Tributary	:	Ghagra	**Sub Tributary**	:	Rapti
Sub-Sub Tributary	:	-	**Local River**	:	Rapti
Division	:	Middle Ganga Division-I (MGD-I), Lucknow	**Sub-Division**	:	Lower Rapti Ghagra Sub-Division,
Drainage Area	:	16387.0 Sq. Km.	**Bank**	:	Left
Latitude	:	26°45'59''	**Longitude**	:	83°17'59''
Current Zero of Gauge (m)	:	67			

CATEGORY		Opening Date	Closing Date
Gauge	:		
Discharge	:		
Sediment	:		
Water Quality	:		

Reduced Level	Opening Date	Closing Date
67.0	07/05/2015	-
67.0	01/01/1976	07/05/2015

Water Quality Datasheet (River Water Analysis) for the period : 2017 - 2018

Station Name: Regauli(022-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Rapti Sub Division: Lower Rapti Ghagra Sub-Division, Gorakhpur

PARAMETERS	01/06/2017	01/07/2017	01/08/2017	01/09/2017	03/10/2017	01/11/2017	01/12/2017	01/01/2018	01/02/2018	05/03/2018	02/04/2018	01/05/2018
Q (cumec)	89	85.35	469.12	1149.43	472.23	270.83	159.58	107.33	119.17	85.62	61.5	82.32
CHEMICAL												
P-Tot(mgP/L	0.41	0.36	0.31	0.26	0.3	0.34	0.32	0.34	0.3	0.36	0.38	0.36
Na(mg/L)	9	7.5	6.6	6.2	8.2	10.1	7.7	10	7.5	9.6	9.2	11.3
hen(mgCaC	0.33	0	0	0	0	0	0	0	0	0	0	0
SiO2(mg/L)	9.2	8.2	7.4	7	7.8	8.2	8	8.4	7.4	8.4	8	8.5
TOT(mgCaC	116.32	164	144	140.16	152	164	156	160	156	192	187.03	190.83
F(mg/L)	0.32	0.26	0.22	0.2	0.25	0.28	0.26	0.28	0.24	0.28	0.26	0.22
NO2-N(mg/L												
K(mg/L)	6.5	5	4.2	4	4.6	5	4.8	5.2	5	6.2	6	7.3
Mg(mg/L)	20.6	18.58	16.51	15.5	18.58	21.67	19.61	20.64	18.06	25.8	22.5	25.2
H3-N(mgN/	0.32	0.24	0.2	0.18	0.22	0.26	0.24	0.24	0.2	0.26	0.24	0.32
B(mg/L)	0.2	0.16	0.12	0.1	0.14	0.18	0.16	0.18	0.14	0.16	0.15	0.18
HCO3(mg/L)	141.1	163.5	175.68	171	185.44	200.08	190.32	195.2	190.32	234.24	228.18	232.81
SO4(mg/L)	18.4	15.2	14	12.8	14	16.6	15.8	16.4	15	18.6	20.5	22.4
Cl(mg/L)	15	12	10	8	12	15	12	14	12	15	14	15
CO3(mg/L)	0.4	0.5	0	0	0	0	0	0	0	0	0	0
Ca(mg/L)	41	37.84	30.96	29	34.4	37.56	36.12	38.7	36.12	46.44	38.52	42.29
TRACE & TOXIC												
PESTICIDES												
BIOLOGICAL/BACTEOROLOGICA												
Chlf-a(µg/L)												
OD3-27(mg/	3	3.1	2.35	2.94	2.15	1.37	1.57	1.37	1.37	1.37	2.15	2.94
MPN(MPN/1	7000	7200	5000	2000	1600	800	900	700	900	700	1100	700
MPN(MPN/1	2300	2500	1400	800	700	300	300	200	300	200	400	200
COD(mg/L)	7	9	6	11	9	3	7	6	7	6	9	8
SAT%(Percen	5.49	5.68	6.27	6.08	6.27	7.64	8.82	8.43	7.45	7.25	5.88	4.9
PHYSICAL												
H_GEN(pH ur	7.9	7.8	7.6	7.7	7.8	8.1	7.5	7.9	8.2	8	7.9	8.2
TDS(mg/L)	201	170	120	110	170	205	190	200	155	216	230	215
H_FLD(pH un	7.5	7.5	7.5	7.5	7.5	8	8	8	7	8.2	8.3	8.4

Water Quality Datasheet (River Water Analysis) for the period : 2017 - 2018

Station Name: Regauli(022-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Rapti Sub Division: Lower Rapti Ghagra Sub-Division, Gorakhpur

GEN(µmho/	330	280	200	180	280	340	310	330	260	360	380	340
)egrees Celsi	27	28	30	27	32	27	20	14	17	23	24	26
_FLD(µmho/(									312	348	352	334
SS(mg/L)												
)dour_Code(	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free		odour free	odour free	odour free
Colour_Cod(-	Clear	Brown	Brown	Brown	Brown	Brown	Light Brown	Clear		Clear	Clear	Clear
CHEMICAL INDICES												
Total(mgCaC	222.33	204.12	170.27	159.58	189.78	210.68	199.52	212.85	195.65	258	216.75	239.21
_Ca(mgCaCO	555.83	510.29	425.69	398.96	474.46	526.69	498.81	532.12	489.12	645	541.88	598.02

Water Quality Summary (River Water Summary) for the period : 2017 - 2018

Station Name: Regauli(022-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Rapti Sub Division: Lower Rapti Ghagra Sub-Division, Gorakhpur

PARAMETERS	No. of Observations	Maximum	Minimum	Mean	Flood (Jun-Oct)	Winter (Nov-Feb)	Summer (Mar-May)
Q (cumec)	365	1318.45	57.49	272.34	495.85	137.86	76.03
CHEMICAL							
Cl	12	15	8	12.83	11.4	13.25	14.67
SiO2	12	9.2	7	8.04	7.92	8	8.3
HCO3	12	234.24	141.1	192.32	167.34	193.98	231.74
F	12	0.32	0.2	0.26	0.25	0.26	0.25
P-Tot	12	0.41	0.26	0.34	0.33	0.32	0.37
B	12	0.2	0.1	0.16	0.14	0.17	0.16
Na	12	11.3	6.2	8.57	7.5	8.83	10.03
Alk-Phen	12	0.33	0	0.03	0.07	0	0
SO4	12	22.4	12.8	16.64	14.88	15.95	20.5
ALK-TOT	12	192	116.32	160.2	143.3	159	189.95
K	12	7.3	4	5.32	4.86	5	6.5
CO3	12	0.5	0	0.07	0.18	0	0
Mg	12	25.8	15.5	20.27	17.95	19.99	24.5
Ca	12	46.44	29	37.41	34.64	37.12	42.42
NH3-N	12	0.32	0.18	0.24	0.23	0.23	0.27
TRACE & TOXIC							
PESTICIDES							
BIOLOGICAL/BACTEOROLOGICAL							
Tcol-MPN	12	7200	700	2383.33	4560	825	833.33
COD	12	11	3	7.33	8.4	5.75	7.67
BOD3-27	12	3.1	1.37	2.14	2.71	1.42	2.15
FCol-MPN	12	2500	200	800	1540	275	266.67
DO_SAT%	12	8.82	4.9	6.68	5.96	8.09	6.01
PHYSICAL							
TDS	12	230	110	181.83	154.2	187.5	220.33
pH_GEN	12	8.2	7.5	7.88	7.76	7.92	8.03
EC_GEN	12	380	180	299.17	254	310	360
Temp	12	32	14	24.58	28.8	19.5	24.33
pH_FLD	12	8.4	7	7.78	7.5	7.75	8.3
EC_FLD	4	352	312	336.5		312	344.67
CHEMICAL INDICES							
HAR_Total	12	258	159.58	206.56	189.22	204.68	237.99
HAR_Ca	12	645	398.96	516.41	473.05	511.69	594.97

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Regauli(022-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Rapti Sub Division: Lower Rapti Ghagra Sub-Division, Gorakhpur

PARAMETERS	Flood (Jun-Oct)											
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2007-2008
Q (cumec)	1072.25	1043.13	857.08	1053.67	644.29	882.45	1202.98	707.42	390.32	396.71	495.85	175.79
BIOLOGICAL/BACTEOROLOGICAL												
BOD3-27			1.02	1.05	0.86	1.02	1.25	0.91	1.73	1.91	2.71	
COD				6	6	6.8	7.6	5.2	7.2	8.67	8.4	
DO		7.17	7.06	7.41	7.41	7.29	6.78	6.67	6.55	6.6		
DO_SAT%		91.23	88.24	92.12	91.7	90.95	85.52	87.87	84.32	86.84	5.96	
FCol-MPN										6000	1540	
Tcol-MPN										6750	4560	
CHEMICAL												
ALK-TOT	176.77	161	167.2	144.8	117.22	139.2	148.8	108.8	134.4	140.8	143.3	422.11
Alk-Phen	5.83	5.73	1.88	3.98	3.11	2.39	5.58	6.37	6.37	2.39	0.07	13.47
B	0.09	0.16	0.14	0.13	0.15	0.15	0.2	0.21	0.18	0.18	0.14	0.15
CO3	7.02	6.9	2.27	4.8	3.75	2.88	6.72	7.68	7.68	2.88	0.18	16.23
Ca	31.44	35.2	36.86	31.96	28.24	30.6	31.32	23.44	36.12	36.44	34.64	56.72
Cl	10.93	14.91	14.84	17.68	12.03	13.63	15.26	20.31	12.5	10.39	11.4	81.35
F	0.14	0.13	0.15	0.14	0.13	0.14	0.17	0.19	0.27	0.29	0.25	0.17
Fe	0.19				0.12							0.24
HCO3	130.42	182.39	199.38	166.9	135.38	163.97	167.87	117.12	148.35	165.92	167.34	283.2
K	3.6	4.07	4.77	4.46	4.61	5.63	4.77	4.38	4.07	4.58	4.86	20.82
Mg	10.57	8.68	18.6	17.52	13.77	19.8	18.2	17.3	16.5	16.91	17.95	17.43
NH3-N			0.07	0.15	0.52	0.54	0.29	0.39	0.31	0.32	0.23	
NO2+NO3		0.11	0.1	0.09	0.98	1.18	0.6	0.39	0.49	0.53		
NO2-N	0.04	0.05	0.06	0.04	0.14	0.14	0.23	0.02	0.03	0.13		0.22
NO3-N		0.06	0.04	0.05	0.83	1.04	0.37	0.38	0.46	0.4		
Na	23.18	8.42	11.8	11.82	7.72	8.6	10.35	7.77	7.08	6.08	7.5	18.9
Ni												
P-Tot			0.1							0.31	0.33	
SO4	19.01	15.94	17.47	13.73	11.71	14.78	17.28	15.84	18.43	15.63	14.88	82.69
SiO2	9.86	8.84	6.81	5.5							7.92	19.09
o-PO4-P	0	0	0.05	0.07	0.14	0.27	0.32	0.48	0.28			0.15
CHEMICAL INDICES												
HAR_Ca											473.05	
HAR_Total	122.64	124.15	169.25	152.9	128.01	159.02	154.14	130.69	159.05	161.55	189.22	216.74
Na%	21.88	12.78	12.84	13.16	11.19	10.13	12.25	11.02	8.79	7.32		12.8
RSC	0.09	0.75	0.24	0.03	0	0	0.05	0	0	0		1
SAR	0.92	0.33	0.4	0.41	0.3	0.3	0.36	0.29	0.25	0.21		0.53
PESTICIDES												
PHYSICAL												
EC_FLD						250						
EC_GEN	256.59	289.74	290.11	278	217.84	245.92	307.6	306	304	237	254	810.67
SS												

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Regauli(022-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Rapti Sub Division: Lower Rapti Ghagra Sub-Division, Gorakhpur

Secchi	78.06	88.42	91.96	79.9	70.58	76.27	78.3	58.6	90.3	91.1		143.33
TDS		198.16	194	167.2	125.97	146.45	199.4	190	180.4	148	154.2	
Temp	28.78	27.79	26.93	26.6	26.38	26.86	27.3	29.82	28.6	30.1	28.8	19.33
Turb										3.82		
pH_FLD	7	7	8		7	7.59					7.5	
pH_GEN	7.91	7.96	7.98	7.99	7.79	8.03	8.26	8.35	8.41	8.22	7.76	7.83
TRACE & TOXIC												
Al					0							
As												
Cd												
Cr												
Cu												
Pb												
Zn												

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Regauli(022-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Rapti Sub Division: Lower Rapti Ghagra Sub-Division, Gorakhpur

Winter (Nov-Feb)

2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
93.47	102.7	125.94	145.3	118.42	167.28	247.56	94.02
	1.37	0.93	0.93	0.93	1.13	0.78	1.72
		4.75	8.25	5.5	5	4	9
7.14	7.18	7.7	7.4	7.3	7.05	7.01	6.71
80.58	80.4	87.64	82.65	81.09	77.19	75.89	72.2
212.5	152.5	119	189	138	134.67	178	187
8.72	3.74	0	1.99	0	7.97	14.94	3.98
0.14	0.16	0.16	0.17	0.17	0.19	0.21	0.18
10.5	4.5	0	2.4	0	7.42	18	4.8
36.15	38.25	27.15	37	29.65	30.85	51.2	43.8
12.51	13.05	13.05	12.07	14.02	14.97	18.99	11.54
0.14	0.17	0.16	0.12	0.16	0.17	0.26	0.31
237.9	176.9	145.18	225.7	168.36	147.36	180.56	218.38
3.62	3.52	4.59	4.59	5.67	3.81	3.02	5.47
16.83	16.77	17.01	25.03	19.08	19.78	19.59	23.21
	0.11	0.15	0.64	0.48	0.34	0.33	0.33
0.1	0.08	0.09	0.48	0.47	0.58	0.48	0.51
0.05	0.04	0.04	0.15	0.09	0.26	0.05	0.04
0.05	0.04	0.04	0.33	0.38	0.32	0.42	0.47
11.62	12.19	6.78	8.97	8.22	8.44	12.08	6.78
0.03	0.18						
6.19	17.76	18	12.12	17.88	17.77	19.44	19.08
7.55	5.92	6.35					
0	0.15	0.13	0.12	0.38	0.31	0.37	0.33
160.49	165.49	138.75	196.79	153.61	160.15	209.63	206.19
13.67	13.42	9.29	8.84	10.02	10.2	11.21	6.53
1.06	0	0	0	0	0	0	0
0.4	0.41	0.25	0.28	0.29	0.29	0.38	0.21
340	356.21	343.79	320	367.5	420	415	320

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Regauli(022-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Rapti Sub Division: Lower Rapti Ghagra Sub-Division, Gorakhpur

90.38	95.59	67.91	92.29	74.12	77.38	128	109.5
204.25	223.1	210.69	182.45	221	272.5	226	198.5
21.38	21.33	21.78	21.08	20.62	20	19.62	19.12
	7	7	7.67				
7.93	8.26	7.92	7.91	7.99	8.3	8.51	8.3

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Regauli(022-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Rapti Sub Division: Lower Rapti Ghagra Sub-Division, Gorakhpur

		Summer (Mar-May)										
2016-2017	2017-2018	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
68.28	137.86	49.61	40.32	38.43	60.65	81.59	53.12	109.94	100.61	30.66	37.41	76.03
1.65	1.42		0.59	1.11	0.72	1.05	0.85	1.17	1.24	1.63	2.6	2.15
7	5.75				6.67	13.33	14	8	6.67	9.67	7.33	7.67
7.19			7.19	7.25	7.32	7.2	6.93	6.47	6.86	6.73		
61.93	8.08		87.37	88.34	89.07	82.63	84.31	76.48	83.55	81.87	5.5	6.01
3000	275										1466.67	266.67
4240	825										22500	833.33
142.73	159	423.7	224	161	124	210.67	162.67	153.33	161.33	180.15	164.52	189.95
0.18	0	8.05	9.96	3.98	0	5.31	0	2.66	15.94	1.28	0.33	0
0.19	0.17	0.21	0.07	0.15	0.17	0.16	0.17	0.2	0.21	0.19	0.19	0.16
0.39	0	9.7	12	4.8	0	6.4	0	3.2	19.2	1.54	2.5	0
35.94	37.13	45.33	33.2	33.8	26.4	36.07	34.47	31.41	38.4	37.55	40.33	42.42
10.82	13.25	33.49	15.98	17.28	15.98	14.67	22.72	21.42	14.67	15.26	14	14.67
0.28	0.26	0.12	0.14	0.16	0.14	0.16	0.16	0.18	0.16	0.34	3.15	0.25
		0.28								1		
162.49	193.98	248.47	248.88	186.66	151.28	244	198.45	180.56	157.79	216.65	161.93	231.74
4.62	5	4.95	4.95	4.82	6	6.91	6.39	4.69	4.04	5.7	6.43	6.5
19.64	20	14.42	15.11	20.37	18.22	27.18	21.3	21.3	19.97	26.03	20.63	24.5
0.3	0.23			0.14	0.16	0.62	0.4	0.37	0.34	0.34	0.31	0.27
0.36			0.11	0.09	0.29	0.65	0.59	0.48	0.48	0.54		
0		0.08	0.05	0.05	0.12	0.15	0.2	0.17	0	0.1		
0.36			0.06	0.04	0.17	0.5	0.4	0.32	0.47	0.44		
6.68	8.82	9.2	12.73	13.49	8.74	11.35	13.11	11.5	9.51	8.67	8.57	10.03
										1		
0.34	0.33		0.03	0.2							0.4	0.37
14.98	15.95	18.88	15.04	16.64	18.72	10.08	19.68	22.08	14.08	17.57	17.33	20.5
	8	11.27	6.7	5.9	6.3							8.3
		0		0.2	0.13	0.23	0.37	0.28	0.27	0.38		
401.04	511.69										549.1	594.97
178.93	204.68	173.41	145.94	169.38	141.94	203.4	174.93	167.28	179.19	202.18	219.64	237.99
7.42		10.06	15.46	14.41	11.33	10.54	13.67	12.72	10.59	8.27		
0		0.95	1.58	0.05	0	0.26	0.01	0.05	0	0		
0.22		0.3	0.46	0.45	0.32	0.35	0.43	0.39	0.32	0.27		
	312										14	344.67
276.36	310	219.33	354.14	390.45	350	380	383.33	450	350	343.33	319.67	360
											9	

96.03		113.33	82.93	84.57	66	90.17	86.17	78.52	96	93.17		
175.33	187.5		253.86	238.64	210	221.67	246.67	280	194.67	207	196.33	220.33
19.08	19.5	23.67	24.7	25.64	25.33	22.83	25.33	23.67	25.83	25.5	25.17	24.33
2.5												
7.95	7.75		7	7		8					8.17	8.3
8.3	7.93	8.01	7.96	8.27	8.09	8.11	8.04	8.29	8.81	8.23	8.2	8.03
										1		
										1		
										2		
										1		
										1		
										1		

HISTORY SHEET (WATER QUALITY)

			Water Year	:	2017 - 2018
Site	:	Birdghat	**Code**	:	023-MGD1LKN
State	:	Uttar Pradesh	**District**		Gorakhpur
Basin	:	GANGA	**Independent River**	:	Ganga
Tributary	:	Ghagra	**Sub Tributary**	:	Rapti
Sub-Sub Tributary	:	-	**Local River**	:	Rapti
Division	:	Middle Ganga Division-I (MGD-I), Lucknow	**Sub-Division**	:	Lower Rapti Ghagra Sub-Division,
Drainage Area	:	20093.0 Sq. Km.	**Bank**	:	Left
Latitude	:	26°45'59''	**Longitude**	:	83°20'59''
Current Zero of Gauge (m)	:	66.7			

CATEGORY		Opening Date	Closing Date
Gauge	:		
Discharge	:		
Sediment	:		
Water Quality	:		

Reduced Level	Opening Date	Closing Date
66.7	27/04/2015	-
66.7	01/01/1963	27/04/2015
66.7	26/04/1959	01/01/1963

Water Quality Datasheet (River Water Analysis) for the period : 2017 - 2018

Station Name: Birdghat (023-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Rapti Sub Division: Lower Rapti Ghagra Sub-Division, Gorakhpur

PARAMETERS	01/06/2017	01/07/2017	01/08/2017	01/09/2017	03/10/2017	01/11/2017	01/12/2017	01/01/2018	01/02/2018	05/03/2018	02/04/2018	01/05/2018
Q (cumec)	229.76	241.34	603.52	2423.23	780.33	391.78	204	131.42	146.78	103.46	75.37	69.1
CHEMICAL												
hen(mgCaC	0.5	0	0	0	0	0	0	0	0	0	0	0
Na(mg/L)	15.2	10.8	9.5	7.2	8.2	10.1	7.7	8.2	10	11.6	12.2	12.5
H3-N(mgN/	0.42	0.34		0.26	0.3	0.34	0.32	0.34	0.3	0.34	0.32	0.36
Mg(mg/L)	31	26.83	22.67	19.6	22.7	26.83	23.74	24.77	23.72	26.83	28.72	22.08
B(mg/L)	0.26	0.2	0.16	0.12	0.16	0.18	0.16	0.18	0.14	0.18	0.2	0.22
CO3(mg/L)	0.6	0.5	0	0	0	0	0	0	0	0	0	0
NO2-N(mg/L												
Ca(mg/L)	55	46.44	39.56	33	36.12	41.28	37.84	39.56	37.84	51.6	48.46	42.16
HCO3(mg/L)	195.3	175.5	190.32	171	180.5	195.2	185.44	200.08	192.76	248.88	238.78	205.84
SiO2(mg/L)	10.2	8.4	8	7.4	8	8.6	8.2	8.4	8	8.8	9	9.8
P-Tot(mgP/L	0.51	0.4		0.32	0.36	0.38	0.36	0.38	0.34	0.38	0.42	0.48
TOT(mgCaC	161.08	176	156	140.16	147.95	160	152	164	158	204	195.72	168.72
SO4(mg/L)	24.2	19.5	18.4	16.2	17	18.2	17.6	19	18.4	20.6	22.5	22.6
Cl(mg/L)	24	18	14	10	12	15	12	15	14	18	21	18
K(mg/L)	9	7.5	6.9	5.7	6	6.8	6.6	6.9	5.9	6.8	7.2	8.5
F(mg/L)	0.48	0.36	0.32	0.24	0.28	0.32	0.3	0.32	0.28	0.32	0.28	0.32
TRACE & TOXIC												
PESTICIDES												
BIOLOGICAL/BACTEOROLOGICAL												
Chlf-a(µg/L)												
MPN(MPN/1	8000	6500	4000	3500	1700	1000	700	900	1200	900	1000	800
SAT%(Percen	4.31	6.08		5.68	6.08	6.08	7.06	7.84	7.25	6.27	2.97	3.53
OD3-27(mg/	3.1	2.8	3.9	3.9	1.57	2.16	1.96	1.76	1.96	1.76	2.74	2.16
COD(mg/L)	9	10	10	17	5	7	5	9	8	5	19	7
MPN(MPN/1	3800	3300	2000	1500	400	400	200	400	500	300	300	300
PHYSICAL												
dour_Code(	odour free	odour free		odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
TDS(mg/L)	261	174	150	120	165	200	180	190	180	228	255	238
FLD(µmho/									300	348	338	338

Water Quality Datasheet (River Water Analysis) for the period : 2017 - 2018

Station Name: Birdghat (023-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Rapti Sub Division: Lower Rapti Ghagra Sub-Division, Gorakhpur

_GEN(pH ur	7.9	7.8		7.5	7.9	8.1	8.1	8	8.2	8	7.8	8
GEN(µmho/	436	290		200	270	330	300	330	300	380	420	380
_FLD(pH un	7.5	7.5		8	7.5	8	8	8	8.4	8	8	8.2
SS(mg/L)												
egrees Celsi	28	25.5		26.5	28	27.5	20	16	16	22.5	25	29.5
olour_Cod(-	Clear	Clear		Brown	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
CHEMICAL INDICES												
Total(mgCaC	306.67	260.58	221.51	186.5	207.25	239.07	217.02	226.76	216.97	282.08	273.72	230.87
_Ca(mgCaCO	766.67	651.44	553.77	466.25	518.12	597.69	542.54	566.9	542.42	705.19	684.29	577.17

Water Quality Summary (River Water Summary) for the period : 2017 - 2018

Station Name: Birdghat (023-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Rapti Sub Division: Lower Rapti Ghagra Sub-Division, Gorakhpur

PARAMETERS	No. of Observations	Maximum	Minimum	Mean	Flood (Jun-Oct)	Winter (Nov-Feb)	Summer (Mar-May)
Q (cumec)	365	3360.26	61.51	452.28	891.95	175.73	81.82
CHEMICAL							
Cl	12	24	10	15.92	15.6	14	19
HCO3	12	248.88	171	198.3	182.52	193.37	231.17
SiO2	12	10.2	7.4	8.57	8.4	8.3	9.2
F	12	0.48	0.24	0.32	0.34	0.31	0.31
P-Tot	11	0.51	0.32	0.39	0.4	0.37	0.43
B	12	0.26	0.12	0.18	0.18	0.17	0.2
Na	12	15.2	7.2	10.27	10.18	9	12.1
Alk-Phen	12	0.5	0	0.04	0.1	0	0
SO4	12	24.2	16.2	19.52	19.06	18.3	21.9
ALK-TOT	12	204	140.16	165.3	156.24	158.5	189.48
K	12	9	5.7	6.98	7.02	6.55	7.5
CO3	12	0.6	0	0.09	0.22	0	0
Mg	12	31	19.6	24.96	24.56	24.77	25.88
Ca	12	55	33	42.4	42.02	39.13	47.41
NH3-N	11	0.42	0.26	0.33	0.33	0.32	0.34
TRACE & TOXIC							
PESTICIDES							
BIOLOGICAL/BACTEOROLOGICAL							
Tcol-MPN	12	8000	700	2516.67	4740	950	900
COD	12	19	5	9.25	10.2	7.25	10.33
BOD3-27	12	3.9	1.57	2.48	3.05	1.96	2.22
FCol-MPN	12	3800	200	1116.67	2200	375	300
DO_SAT%	11	7.84	2.97	5.74	5.54	7.06	4.26
PHYSICAL							
TDS	12	261	120	195.08	174	187.5	240.33
pH_GEN	11	8.2	7.5	7.94	7.78	8.1	7.93
EC_GEN	11	436	200	330.55	299	315	393.33
pH_FLD	11	8.4	7.5	7.92	7.62	8.1	8.07
Temp	11	29.5	16	24.05	27	19.88	25.67
EC_FLD	4	348	300	331		300	341.33
CHEMICAL INDICES							
HAR_Total	12	306.67	186.5	239.08	236.5	224.95	262.22
HAR_Ca	12	766.67	466.25	597.7	591.25	562.39	655.55

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Birdghat (023-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Rapti Sub Division: Lower Rapti Ghagra Sub-Division, Gorakhpur

PARAMETERS	Flood (Jun-Oct)												
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2007-2008	2008-2009
Q (cumec)	1304.9	1095.39	899.48	750.78	379.57	455.27	1097.79	580.53	291.49	532.84	891.95	113.25	90.74
BIOLOGICAL/BACTEOROLOGICAL													
BOD3-27			1.01	1.14	0.95	1.19	1.21	1.02	2.16	2.01	3.05		
COD					30.6	9.2	7.4	7.2	9.4	9	10.2		
DO	6.56	6.61	7.1	8.37	8.11	7.85	6.98	6.75	6.27	6.48		6.8	7.14
DO_SAT%	80.55	80.92	86.2	99.41	88.9	86.93	77.49	87.44	75.29	80.89	5.54	69.76	73.85
FCol-MPN										3000	2200		
Tcol-MPN										10000	4740		
CHEMICAL													
ALK-TOT	298.03	257.99	173.02	135.6	127.82	138.4	143.2	106.4	130.4	140.8	156.24	419.69	272.5
Alk-Phen	4.83	5.73	1.88	5.58	1.56	1.59	4.78	4.78	5.58	3.19	0.1	8.47	7.47
B	0.08	0.16	0.15	0.14	0.17	0.15	0.19	0.21	0.18	0.18	0.18	0.14	0.13
CO3	5.82	6.9	2.27	6.72	1.88	1.92	5.76	5.76	6.72	3.84	0.22	10.2	9
Ca	34.2	36.8	36.52	31	28.2	30.28	31.64	23.76	35.76	37.5	42.02	42	35.8
Cl	14.91	15.97	14.37	14.41	12.83	13.63	14.48	19.17	15.12	11.17	15.6	27.51	12.51
F	0.08	0.13	0.14	0.13	0.1	0.13	0.18	0.21	0.27	0.29	0.34	0.12	0.15
Fe	0.16				0.12							0.21	
HCO3	175.8	194.1	206.48	151.77	152.12	164.94	162.99	118.1	145.42	163.97	182.52	245.52	314.15
K	3.6	4.07	4.85	3.83	5.55	6.33	4.85	4.38	4.57	4.67	7.02	4.11	3.23
Mg	5.44	6.27	18.46	16.91	15.5	20.61	18.86	17.13	15.45	17.11	24.56	12.03	17.4
NH3-N			0.06	0.17	0.6	0.54	0.29	0.35	0.32	0.33	0.33		
NO2+NO3		0.18	0.1	0.11	0.95	1.41	0.6	0.4	0.5	0.58			0.14
NO2-N	0.04	0.05	0.06	0.05	0.15	0.39	0.24	0.02	0.04	0.17		0.06	0.05
NO3-N		0.13	0.04	0.06	0.8	1.02	0.36	0.38	0.46	0.41			0.09
Na	8.05	8.6	11.92	8.33	9	9.38	10.3	7.04	9.15	6.6	10.18	8.34	11.56
Ni													
P-Tot			0.08							0.32	0.4		0.01
SO4	17.47	15.55	15.73	13.44	10.85	16.03	18.82	15.55	19.01	16.09	19.06	11.76	9.24
SiO2	9.68	8.76	7.17	5.82							8.4	10.5	6.14
o-PO4-P	0.03	0.03	0.04	0.09	0.16	0.32	0.32	0.44	0.29			0.03	0.01
CHEMICAL INDICES													
HAR_Ca											591.25		
HAR_Total	108.18	118.12	167.75	147.97	135.2	161.56	157.67	130.78	153.8	165.07	236.5	155.12	162.02
Na%	13.73	13.57	13.1	10.57	12.07	10.63	12.04	10.3	10.95	7.64		10.27	13.53
RSC	0.92	1.06	0.33	0	0.03	0	0	0	0	0		1.28	2.23
SAR	0.34	0.35	0.4	0.3	0.34	0.32	0.36	0.27	0.32	0.22		0.29	0.4
PESTICIDES													
PHYSICAL													
EC_FLD	350					310							
EC_GEN	266.8	288.8	284.6	264	232.4	249.63	300	324	320	248.8	299	215	327.25
SS													
Secchi	85.5	92	91.2	77.5	70.6	76.05	79.1	59.4	89.4	93.76		105	89.5

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Birdghat (023-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Rapti Sub Division: Lower Rapti Ghagra Sub-Division, Gorakhpur

TDS		196	192.8	157.8	134.6	150.39	193.2	194.2	186.6	155	174		198.75
Temp	26.1	25.7	25.3	24.2	19.8	20.7	20.6	29	24.82	27	27	16.75	17
Turb										4.08			
pH_FLD	7.9					7.98					7.62		
pH_GEN	7.98	7.97	7.85	7.94	7.68	7.95	8.13	8.23	8.34	8.18	7.77	8.06	8.07
TRACE & TOXIC													
As													
Cd													
Cr													
Cu													
Pb													
Zn													

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Birdghat (023-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Rapti Sub Division: Lower Rapti Ghagra Sub-Division, Gorakhpur

Winter (Nov-Feb)

2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
116.66	138.04	105.64	151.1	203.61	127.51	211.67	215.3	175.73
1.48	0.86	1.03	1.07	1.23	1.48	1.66	1.98	1.96
	3	11.25	10	7.25	7.5	8.5	8.67	7.25
7.03	8.5	8.74	7.54	6.91	6.22	6.76	6.47	
69.37	94.29	83.71	71.65	71.57	67.61	80.32	74.5	7.06
							2833.33	375
							7480	950
160	117	180	137	134	174	201	177.33	158.5
7.47	0	1	0	5.98	19.92	5.98	2.66	0
0.15	0.16	0.15	0.18	0.18	0.21	0.19	0.2	0.17
9	0	1.2	0	7.2	24	7.2	2.51	0
43	28	39.1	29.75	32.25	48.65	48.6	42.16	39.13
15	14.02	15	15.97	15	20.95	12.07	12	14
0.16	0.15	0.16	0.17	0.19	0.26	0.32	0.3	0.3
176.9	142.74	217.16	167.14	148.84	163.48	230.58	186.27	193.37
3.23	4.79	4.69	5.87	4.4	3.72	5.47	5.57	6.55
13.88	15.98	21.41	19.32	20.08	20.62	24.24	21.68	24.76
0.06	0.16	0.65	0.45	0.37	0.31	0.34	0.32	0.33
0.09	0.09	0.63	0.46	0.56	0.45	0.54	0.47	
0.04	0.05	0.17	0.1	0.27	0.02	0.06	0.12	
0.05	0.04	0.47	0.36	0.29	0.43	0.48	0.35	
29.61	7.01	9.54	8.74	8.74	12.77	7.13	7.59	9
0.15							0.38	0.36
14.64	18.36	12.12	14.14	18.6	21.24	19.44	16.06	18.3
6.37	5.85							8.3
0.13	0.13	0.12	0.4	0.33	0.36	0.34		
								562.39
165.34	136.57	186.98	154.87	164.28	207.56	222.5	202.1	224.95
21.9	9.67	9.73	10.5	10.24	11.35	6.38	7.24	
0.15	0	0.01	0	0	0	0	0	
0.99	0.26	0.3	0.31	0.3	0.38	0.21	0.23	
								300
375	337.5	330.67	355	405	432.5	340	330	315
107.5	70	97.68	74.38	80.62	121.62	121.5	110.37	

232.5	205	189.13	215.25	262.5	240.75	212.5	205.33	187.5
15.05	20.5	13.15	13.12	17.12	19.25	24.25	21.32	19.88
							1.93	
		8					8	8.1
8.4	7.77	7.99	8	8.36	8.4	8.26	8.31	8.1

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Birdghat (023-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Rapti Sub Division: Lower Rapti Ghagra Sub-Division, Gorakhpur

Summer (Mar-May)										
2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
44.16	41.87	48.92	57.73	59.38	77.26	60.82	71.55	167	150.15	81.82
	0.79	1.31	0.98	1.57	0.86	1.24	1.96	2.16	2.7	2.22
			13	17.33	13	8.67	9.33	11.33	5.67	10.33
6.62	7.23	7.6	9.08	7.32	7.34	6.41	6.27	6.53		
72.91	78.54	83.95	99.18	80.25	77.24	66.77	73.08	78.25	5.04	4.26
									2233.33	300
									3733.33	900
495.06	246	160	130.67	216	170.67	164	180	205.74	138.2	189.48
8.05	14.94	3.98	1.33	9.3	7.97	6.64	18.59	2.56	0.8	0
0.19	0.07	0.17	0.17	0.16	0.18	0.24	0.21	0.2	0.21	0.2
9.7	18	4.8	1.6	11.2	9.6	8	22.4	3.08	1.3	0
45.33	35.6	34.4	28.13	33.27	33.27	37.27	40.73	48.97	35.67	47.41
36.8	15.26	18.58	15.97	17.28	21.3	24.02	28.64	21.52	16.33	19
0.05	0.12	0.15	0.16	0.17	0.19	0.18	0.18	0.35	0.36	0.31
0.26								1		
291.99	263.52	185.44	156.16	240.75	188.69	183.81	174.05	244.74	136.83	231.17
4.95	4.3	4.43	5.21	7.17	6.78	5.21	5.6	6.77	7.7	7.5
14.42	14.09	20.61	17.86	30.94	23.37	21.99	25.11	24.43	23.73	25.88
		0.14	0.17	0.65	0.39	0.37	0.35	0.35	0.34	0.34
	0.13	0.09	0.29	0.7	0.63	0.69	0.5	0.56		
0.09	0.05	0.04	0.12	0.15	0.23	0.38	0.02	0.1		
	0.08	0.05	0.16	0.55	0.4	0.32	0.48	0.45		
43.09	14.64	14.64	9.81	11.81	13.72	12.88	17.94	13.6	10.43	12.1
								1		
	0.02	0.22							0.44	0.43
17.44	14.08	17.28	18.88	9.92	20.48	20.96	19.68	18.22	19.17	21.9
10.67	2.32	6.1	5.93							9.2
0.03		0.99	0.16	0.22	0.38	0.28	0.3	0.4		
									519.86	655.55
173.41	147.72	171.89	144.75	212.09	180.54	184.8	206.46	223.59	207.94	262.22
26.08	17.3	15.19	12.39	10.52	13.89	12.77	15.54	11.13		
1.66	1.98	0.15	0	0.14	0.02	0	0	0		
1.44	0.53	0.49	0.36	0.35	0.45	0.41	0.55	0.39		
									14	341.33
225.33	361.67	416.67	370	406.67	381.36	460	436.67	400	347.33	393.33
									9	
113.33	89	86	70.33	83.17	82.7	93.17	101.83	122		

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Birdghat (023-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Rapti Sub Division: Lower Rapti Ghagra Sub-Division, Gorakhpur

	236.33	253.33	236.67	236	245.45	286.67	246.67	250	213	240.33
20.33	19.17	20.17	19.67	20.5	18.14	17.67	23.5	24.5	22.83	25.67
				7.76	8				8	8.07
8.15	8.13	8.17	8.01	8.01	8.14	8.23	8.8	8.13	8.27	7.93
								1		
								1		
								2		
								1		
								1		
								1		

HISTORY SHEET (WATER QUALITY)

			Water Year	:	2017 - 2018
Site	:	GHAT	**Code**	:	029-MGD1LKN
State	:	Uttarakhand	**District**		Pithoragarh
Basin	:	GANGA	**Independent River**	:	Ganga
Tributary	:	Ghagra	**Sub Tributary**	:	Sarda
Sub-Sub Tributary	:	-	**Local River**	:	Sarda
Division	:	Middle Ganga Division-I (MGD-I), Lucknow	**Sub-Division**	:	Upper SardaSub-Division, Haldwani
Drainage Area	:	3900.0 Sq. Km.	**Bank**	:	Right
Latitude	:	29°30'0''	**Longitude**	:	80°6'59''
Current Zero of Gauge (m)	:	450			

CATEGORY		Opening Date	Closing Date
Gauge	:		
Discharge	:		
Sediment	:		
Water Quality	:		

Reduced Level	Opening Date	Closing Date
450.0	17/11/1976	14/08/2015
450.0	14/08/2015	-

Water Quality Datasheet (River Water Analysis) for the period : 2017 - 2018

Station Name: GHAT(029-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Sarda Sub Division: Upper SardaSub-Division, Haldwani

PARAMETERS	01/06/2017	01/07/2017	01/08/2017	01/09/2017	03/10/2017	01/11/2017	01/12/2017	01/01/2018	01/02/2018	05/03/2018	02/04/2018	01/05/2018
Q (cumec)	53.6	64.52	372.03	345.56	138.83	65.58	51.26	47.55	44.95	41.84	34.51	35.07
CHEMICAL												
ALK-TOT(mgCaCO3/L	80.91	124.17	120	100	140	128	126	156	148	180	154.25	168.28
NO2-N(mg/L)												
Mg(mg/L)	20.6	21.67	19.61	15.5	20.64	18.06	17.54	22.7	20.64	25.8	21.55	23.82
CO3(mg/L)	0.3	1.2	0	0	0	0	0	0	0	0	0	0
K(mg/L)	5	5.4	5	3.8	4.8	40	3.8	4.4	4	4.5	4	5.3
B(mg/L)	0.16	0.18	0.16	0.12	0.18	0.14	0.12	0.14	0.1	0.12	0.11	0.18
F(mg/L)	0.18	0.2	0.18	0.12	0.2	0.16	0.15	0.18	0.16	0.2	0.18	0.22
HCO3(mg/L)	98.1	123	146.4	122	170.8	156.16	153.72	190.32	180.56	219.6	188.18	205.3
Ca(mg/L)	24	25.8	24.08	21	32.68	27.52	27.52	29.24	27.52	36.12	28.15	32.25
Na(mg/L)	4.6	5	4.6	4	6.8	5.5	5.2	7.4	7	9.3	8.3	9.4
P-Tot(mgP/L)	0.22	0.24	0.22	0.16	0.22	0.18	0.2	0.24	0.22	0.26	0.22	0.36
SiO2(mg/L)	7.2	7.4	7	6.4	7.2	6.4	6.6	7	6.8	7.2	7	8.8
SO4(mg/L)	16	17	16.4	12.6	14.2	13.1	14	16.6	15.2	17.4	16.2	18
Cl(mg/L)	7	8	7	6	10	8	8	12	11	15	14	18
NH3-N(mgN/L)	0.26	0.28	0.26	0.2	0.28	0.24	0.22	0.26	0.2	0.24	0.22	0.25
Alk-Phen(mgCaCO3/L	0.25	0.08	0	0	0	0	0	0	0	0	0	0
TRACE & TOXIC												
PESTICIDES												
BIOLOGICAL/BACTEOROLOGICAL												
DO_SAT%(Percentage	6.47	6.27	9.41	7.25	7.25	8.04	8.23	9.21	7.45	8.23	7.64	4.12
Col-MPN(MPN/100m	3000	3200	1500	2000	900	600	500	400	900	600	700	1000
COD(mg/L)	8	8	5	8	3	3	5	4	7	4	5	8
BOD3-27(mg/L)	1.6	1.8	1.57	1.76	1.17	0.98	0.78	0.78	1.37	1.17	1.76	3.17
Chlf-a(µg/L)												
Col-MPN(MPN/100m	1800	2000	400	500	200	100	100	100	300	100	200	300
PHYSICAL												
pH_GEN(pH unit)	8	8	7.9	8	8	8.2	8.1	7.9	8.2	8.2	8.1	7.9
Odour_Code(-)	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free		odour free	odour free	odour free
TDS(mg/L)	146	150	140	104	190	134	134	175	155	164	195	132

Water Quality Datasheet (River Water Analysis) for the period : 2017 - 2018

Station Name: GHAT(029-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Sarda Sub Division: Upper SardaSub-Division, Haldwani

pH_FLD(pH unit)	7.5	8	7.5	7.5	7.5	7.5	7	8	7	8.1	8.5	8.5
np(Degrees Celsius (	27.5	28	29	27	22	20	14	9	17	11	15	17.6
EC_FLD(µmho/cm)									312	275	338	207
EC_GEN(µmho/cm)	240	250	230	170	310	230	230	290	260	270	320	220
SS(mg/L)												
Colour_Cod(-)	Clear	Clear	Light Brown	Brown	Clear	Clear	Clear	Clear		Clear	Clear	Brown
CHEMICAL INDICES												
AR_Total(mgCaCO3/	151.5	161.68	149.36	126.25	187.77	159.82	158.52	178.58	166.27	215	171.17	193.93
HAR_Ca(mgCaCO3/L	378.75	404.19	373.39	315.62	469.42	399.54	396.29	446.46	415.67	537.5	427.92	484.81

Water Quality Summary (River Water Summary) for the period : 2017 - 2018

Station Name: GHAT(029-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Sarda Sub Division: Upper SardaSub-Division, Haldwani

PARAMETERS	No. of Observations	Maximum	Minimum	Mean	Flood (Jun-Oct)	Winter (Nov-Feb)	Summer (Mar-May)
Q (cumec)	365	696.36	32	119.52	224.58	49.5	36.12
CHEMICAL							
Cl	12	18	6	10.33	7.6	9.75	15.67
HCO3	12	219.6	98.1	162.85	132.06	170.19	204.36
SiO2	12	8.8	6.4	7.08	7.04	6.7	7.67
F	12	0.22	0.12	0.18	0.18	0.16	0.2
P-Tot	12	0.36	0.16	0.23	0.21	0.21	0.28
B	12	0.18	0.1	0.14	0.16	0.12	0.14
Na	12	9.4	4	6.42	5	6.28	9
Alk-Phen	12	0.25	0	0.03	0.07	0	0
SO4	12	18	12.6	15.56	15.24	14.73	17.2
ALK-TOT	12	180	80.91	135.47	113.02	139.5	167.51
K	12	40	3.8	7.5	4.8	13.05	4.6
CO3	12	1.2	0	0.12	0.3	0	0
Mg	12	25.8	15.5	20.68	19.6	19.74	23.72
Ca	12	36.12	21	27.99	25.51	27.95	32.17
NH3-N	12	0.28	0.2	0.24	0.26	0.23	0.24
TRACE & TOXIC							
PESTICIDES							
BIOLOGICAL/BACTEOROLOGICAL							
Tcol-MPN	12	3200	400	1275	2120	600	766.67
COD	12	8	3	5.67	6.4	4.75	5.67
BOD3-27	12	3.17	0.78	1.49	1.58	0.98	2.03
FCol-MPN	12	2000	100	508.33	980	150	200
DO_SAT%	12	9.41	4.12	7.46	7.33	8.23	6.66
PHYSICAL							
TDS	12	195	104	151.58	146	149.5	163.67
pH_GEN	12	8.2	7.9	8.04	7.98	8.1	8.07
EC_GEN	12	320	170	251.67	240	252.5	270
Temp	12	29	9	19.76	26.7	15	14.53
pH_FLD	12	8.5	7	7.72	7.6	7.38	8.37
EC_FLD	4	338	207	283		312	273.33
CHEMICAL INDICES							
HAR_Total	12	215	126.25	168.32	155.31	165.8	193.36
HAR_Ca	12	537.5	315.62	420.8	388.27	414.49	483.41

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: GHAT(029-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Sarda Sub Division: Upper SardaSub-Division, Haldwani

PARAMETERS	2010	2011	2012	2013	2014	2015	2016	2017	2009-2010	2010-2011	2011-2012	2012-2013
Q (cumec)	384.14	367.95	221.94	467.36	267.39	223.8	310.63	224.58	39.91	55.97	34.67	42.14
BIOLOGICAL/BACTEOROLOGICAL												
BOD3-27	0.58	0.47	0.7	0.63	0.81	0.71	0.8	1.58	0.44	0.75	0.44	0.97
COD	1	6.2	3.4	4	3.4	3.8	4.17	6.4		1.53	2.25	8.6
DO	8.8	7.62	7.03	7.02	6.98	7.1	7.3		7.99	9.04	7.46	7.11
DO_SAT%	100.73	86.73	80.74	81.81	81.08	82.8	85.25	7.33	74.41	88.63	71.57	66.24
FCol-MPN							2000	980				
Tcol-MPN							4500	2120				
CHEMICAL												
ALK-TOT	131.2	108.71	106.1	132	94.4	92	94.4	113.02	141	111	162	124
Alk-Phen	4.78	0	6.37	4.78	5.58	1.99	2.39	0.07	4.98	0	4.98	0
B	0.12	0.13	0.13	0.16	0.18	0.16	0.16	0.16	0.13	0.14	0.14	0.15
CO3	5.76	0	7.68	5.76	6.72	1.97	2.88	0.3	6	0	6	0
Ca	28.92	25.8	27.16	28.52	22.72	23.8	23.38	25.51	35.25	25.8	32.65	27.5
Cl	10.51	9.74	12.07	13.63	15.69	6.42	6.02	7.6	12.07	12.07	12.07	13.05
F	0.12	0.1	0.12	0.16	0.17	0.24	0.21	0.18	0.14	0.13	0.14	0.15
Fe		0.1										
HCO3	148.35	132.63	113.83	149.33	101.5	102.95	109.31	132.06	159.82	135.42	185.44	151.28
K	2.74	2.9	3.44	3.6	2.35	2.51	2.82	4.8	2.05	3.52	3.42	4.4
Mg	16.91	15.25	17.5	17.84	16.48	11.8	11.35	19.6	17.53	15.73	21.66	17.28
NH3-N	0.14	0.39	0.51	0.25	0.33	0.29	0.28	0.26	0.06	0.15	0.62	0.46
NO2+NO3	0.08	0.75	0.57	0.56	0.43	0.42	0.36		0.07	0.07	0.5	0.43
NO2-N	0.03	0.12	0.14	0.21	0.1	0	0.02		0.03	0.04	0.09	0.1
NO3-N	0.04	0.63	0.43	0.35	0.33	0.42	0.33		0.04	0.04	0.41	0.33
Na	3.91	3.78	4.46	9.02	3.04	3.71	4.13	5	8.91	5	5.29	6.27
Ni												
P-Tot							0.23	0.21	0.14			
SO4	15.36	9.77	14.88	16.22	14.11	15.14	13.86	15.24	15.48	15.6	11.4	16.32
SiO2	5.02							7.04	5.52	5.25		
o-PO4-P	0.06	0.07	0.25	0.29	0.39	0.24			0.11	0.12	0.11	0.36
CHEMICAL INDICES												
HAR_Ca								388.27				
HAR_Total	142.77	128.08	140.8	145.62	125.45	108.2	105.71	155.31	161.15	130.06	171.86	140.76
Na%	5.61	5.89	6.12	11.46	5.03	6.93	7.62		10.03	7.53	6.15	8.51
RSC	0.06	0	0	0	0	0	0		0	0	0.05	0
SAR	0.14	0.15	0.16	0.32	0.12	0.16	0.17		0.3	0.19	0.18	0.23
PESTICIDES												
PHYSICAL												
EC_FLD			200									
EC_GEN	247.6	206	188.29	246	238	232	177.8	240	265	270	255	257.5
SS												
Secchi	72.3	64.5	67.82	71.3	56.8	59.3	58.44		87.83	64.5	81.62	68.75

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: GHAT(029-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Sarda Sub Division: Upper SardaSub-Division, Haldwani

TDS	150.2	121.6	115	158.6	148.8	138.8	110	146	165.23	161.25	154.5	160.75
Temp	22.4	21.6	22.27	23	22.8	23	23.2	26.7	12.13	12.08	13.25	11.5
Turb							3.74					
pH_FLD	7.7	7.38	7.52					7.6	8	7.45	7.55	6.9
pH_GEN	8.11	7.68	8.33	8.33	8.58	8.32	8.36	7.98	8.28	8.01	8.19	8.2
TRACE & TOXIC												
As												
Cd												
Cr												
Cu												
Pb												
Zn												

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: GHAT(029-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Sarda Sub Division: Upper SardaSub-Division, Haldwani

Flood (Jun-Oct)

2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2009	2010	2011	2012	2013	2014	2015	2016
56.55	40.86	35.18	41.07	49.5	28.97	26.74	28.12	21.23	39.84	39.63	30.56	17.61
0.64	0.78	0.78	1.06	0.98	0.39	0.51	0.59	0.46	0.59	0.66	0.85	0.85
3.93	4.25	4.75	5.78	4.75			4.33	5	5	3.67	4.67	5
7.39	7.69	7.6	7.49		7.45	8.22	8.03	7.3	6.82	7.19	7.71	7.19
75.27	72.81	73.28	52.82	8.23	80.31	88.7	82.95	75.56	70.91	72.75	86.33	79.13
			2786.96	150								
			3751.72	600								
111	136	124	107.06	139.5	198	140.67	113.33	156	174.67	130.67	134	132.3
3.98	10.96	3.98	3.21	0	8.3	3.98	2.66	3.98	9.3	10.62	1.99	3.98
0.15	0.19	0.16	0.14	0.12	0.05	0.12	0.15	0.15	0.18	0.18	0.17	0.16
4.8	13.2	5.92	3.3	0	10	4.8	3.2	4.8	11.2	12.8	7.54	4.8
26.25	35.7	28.46	28.73	27.95	24.6	30.4	26.4	33.2	31.53	29.8	30.38	31.71
13.05	9.5	7.1	7.61	9.75	10.06	14.67	14.67	17.28	20	13.37	8.59	8.05
0.15	0.21	0.25	0.18	0.16	0.11	0.16	0.12	0.13	0.16	0.17	0.18	0.28
												0.03
125.66	139.08	131.23	116.55	170.19	221.23	161.85	131.76	180.56	190.32	133.39	141.42	151.65
2.74	1.51	2.75	3.83	13.05	1.69	3.91	3.52	5.47	5.73	2.35	1.82	3.63
17.01	19.59	15.49	14.47	19.74	10.65	20.25	16.48	21.34	20.49	19.93	18.42	16.52
0.32	0.31	0.29	0.26	0.23		0.1	0.15	0.58	0.4	0.34	0.33	0.29
0.52	0.35	0.43	0.31		0.05	0.07	0.23	0.61	0.63	0.52	0.42	0.41
0.23	0	0	0		0.02	0.02	0.11	0.13	0.18	0.19	0	0
0.28	0.35	0.43	0.31		0.02	0.04	0.13	0.48	0.45	0.32	0.42	0.41
4.26	5	4.14	4.93	6.27	3.37	5.9	6.13	7.9	12.65	4.37	4.01	4.98
												1
			0.27	0.21	0.02	0.18						
15.36	18.24	17.02	13.42	14.72	10.08	13.76	16.96	14.08	18.88	17.92	11.59	15.69
				6.7	4.67	5.67	5.9					
0.28	0.33	0.28				0.18	0.14	0.21	0.37	0.23	0.25	0.31
			382.29	414.49								
136.5	170.88	135.42	138.56	165.8	105.88	160.38	134.68	171.93	164.22	157.53	152.11	147.51
6.22	5.99	6.1	7.36		6.43	7.24	8.73	8.82	14.1	5.62	5.3	6.77
0	0	0	0		1.86	0	0	0	0.37	0	0	0
0.16	0.17	0.15	0.19		0.14	0.2	0.23	0.26	0.44	0.15	0.14	0.18
				312								
295	282.5	235	230.3	252.5	249.67	283.33	256.67	280	370	286.67	246.67	250
65.62	89.25	71	74.53		61.5	76	66	83	78.83	74.5	76	78.83

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: GHAT(029-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Sarda Sub Division: Upper SardaSub-Division, Haldwani

190.5	160.5	149.25	140.52	149.5	190.33	171.67	155	166.67	243.33	186.33	143.67	161
12.62	13	13.75	10.4	15	17	19	17	17	17.33	16	21	20
			1.6									
			8	7.38		7.5	7.17	7.83	6.8			
8.31	8.63	8.56	8.5	8.1	8.06	8.24	8.14	8.18	8.29	8.55	8.68	8.47
												1
												1
												2
												1
												1
												1

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: GHAT(029-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Sarda Sub Division: Upper SardaSub-Division, Haldwani

2017	2018	2009	2007	2008	2007-2008	2008-2009	2008
31.17	36.12						
1.33	2.03	0.78					
6	5.67						
		7.21					
5.36	6.66	81.89					
1300	200						
2166.67	766.67						
104.67	167.51	145.35	169.34	267.83	167.38	337.61	187.67
0.69	0	0	4.83	5.73	9.71	0	9.71
0.14	0.14	0.13	0.06	0.15	0.14	0.1	0.2
1.67	0	0	5.82	6.9	11.7	0	11.7
22.67	32.17	33.07	26.32	37.6	38	29.45	39.07
11.7	15.67	12.37	7.6	11.93	13.67	10.56	21.54
0.21	0.2	0.13	0.13	0.12	0.11	0.14	0.13
			0.13		0.2		0.25
102.9	204.36	177.32	141.03	156.28	180.41	237.9	205.16
4.9	4.6	3.69	3.52	3.6	3.91	1.56	4.56
18.77	23.72	17.73	16.21	8.68	15.61	9.63	13.65
0.25	0.24	0.06					
		0.04		0.06		0.06	
		0.03	0.04	0.05	0.05	0.04	0.08
		0.02		0.01		0.01	
4.4	9	8.6	7.5	7.73	7.76	3.11	8.59
0.22	0.28	0.08				0.01	
16.03	17.2	14.8	14.21	14.78	12.96	7.8	18.88
	7.67	5.46	7.08	7.48	7.9	6.8	8.4
		0.04	0.01	0.01	0.01	0.01	0.01
353.4	483.41						
141.36	193.36	156.31	133.33	130.15	160.05	113.75	154.54
		10.23	11.35	11.29	9.33	6.07	10.58
		0.24	0.18	0.23	0.18	1.64	0.68
		0.3	0.29	0.3	0.27	0.13	0.3
14	273.33						
239	270	223.2	237.8	300.6	252	273.75	263.33
9							
		82.5	65.8	94	95	73.62	97.67

147.67	163.67	161.4		203		210.5	
17.33	14.53	21.6	19.8	21.6	11.25	13.25	17.33
8.17	8.37						
8.33	8.07	8.13	8.16	8.16	8.43	8.24	8.53

HISTORY SHEET (WATER QUALITY)

			Water Year	:	2017 - 2018
Site	:	Balrampur	**Code**	:	018-MGD1LKN
State	:	Uttar Pradesh	**District**		Balrampur *
Basin	:	GANGA	**Independent River**	:	Ganga
Tributary	:	Ghagra	**Sub Tributary**	:	Rapti
Sub-Sub Tributary	:	-	**Local River**	:	Rapti
Division	:	Middle Ganga Division-I (MGD-I), Lucknow	**Sub-Division**	:	Upper Rapti Sub-Division, Gonda
Drainage Area	:	8219.0 Sq. Km.	**Bank**	:	Right
Latitude	:	27°26'59''	**Longitude**	:	82°13'0''
Current Zero of Gauge (m)	:	98			

CATEGORY		Opening Date	Closing Date
Gauge	:		
Discharge	:		
Sediment	:		
Water Quality	:		

Reduced Level	Opening Date	Closing Date
98.0	06/05/2014	-
98.0	23/01/1982	06/05/2014
98.0	30/07/1970	23/01/1982
62.0	07/09/1959	27/05/2015

Water Quality Datasheet (River Water Analysis) for the period : 2017 - 2018

Station Name: Balrampur(018-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Rapti Sub Division: Upper Rapti Sub-Division, Gonda

PARAMETERS	01/06/2017	01/07/2017	01/08/2017	01/09/2017	03/10/2017	01/11/2017	01/12/2017	01/01/2018	01/02/2018	05/03/2018	02/04/2018	01/05/2018
Q (cumec)	80.14	302.77	813.5	460.79	442.66	86.4	51.19	31.21	57.32	20.35	16.18	14.17
CHEMICAL												
P-Tot(mgP/L	0.31	0.27	0.26	0.26	0.26	0.28	0.26	0.28	0.24	0.27	0.28	0.36
hen(mgCaC(	0.91	0.08	0	0	0	0	0	0	0	0	0	0
B(mg/L)	0.16	0.12	0.1	0.1	0.12	0.14	0.12	0.14	0.1	0.14	0.12	0.15
HCO3(mg/L)	121.6	143.7	161.04	156	161.04	175.68	165.92	180.56	170.8	219.6	188.15	218.38
F(mg/L)	0.25	0.2	0.18	0.18	0.18	0.2	0.18	0.22	0.2	0.25	0.18	0.26
TOT(mgCaC(	101.5	144.17	132	127.87	132	144	136	148	140	180	154.22	179
Mg(mg/L)	21.7	19.61	17.54	16.5	17.54	20.64	19.61	21.67	18.06	26.83	22.18	19.12
H3-N(mgN/	0.26	0.22	0.2	0.2	0.2	0.24	0.2	0.24	0.2	0.24	0.22	0.28
Cl(mg/L)	11	10	7	7	8	10	9	12	11	14	12	15
SO4(mg/L)	15.8	14	12.6	12	13.2	14.6	14	14.8	13.2	15.6	14	18.4
Na(mg/L)	7	6.1	5	4.8	5.6	6.6	6.8	8.2	7.5	9.6	8.2	10.8
SiO2(mg/L)	9.8	9.2	8.6	8.6	8.6	9	8.4	9.2	8.6	9	8.2	9.3
K(mg/L)	6	5.2	4.6	4.4	4.7	5.2	4.8	5	4.1	5	4.3	6.7
Ca(mg/L)	33	30.96	25.8	25	27.52	30.96	29.24	32.68	29.24	41.28	32.15	38.23
NO2-N(mg/L												
CO3(mg/L)	1.1	0.4	0	0	0	0	0	0	0	0	0	0
TRACE & TOXIC												
PESTICIDES												
BIOLOGICAL/BACTEOROLOGICAI												
OD3-27(mg/	2.9	3.9	2.35	3.9	1.76	1.57	1.37	1.17	1.37	1.57	2.16	3.74
AT%(Percen	4.9	5.1	5.88	5.68	6.66	7.06	7.45	8.62	7.45	7.25	5.88	4.7
MPN(MPN/1	1500	2000	2500	2000	900	400	300	300	500	400	300	300
MPN(MPN/1	2500	3200	4000	3500	2000	900	700	800	1100	1000	900	900
Chlf-a(µg/L)												
COD(mg/L)	6	10	6	12	4	4	5	6	7	6	9	9
PHYSICAL												
GEN(µmho/	290	260	230	260	260	290	270	290	260	330	350	300
H_FLD(pH un	8	7.5	7.5	7.5	7.5	8	7.5	7	7	8	8	8
_FLD(µmho/(									312	325	239	239

Water Quality Datasheet (River Water Analysis) for the period : 2017 - 2018

Station Name: Balrampur(018-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Rapti Sub Division: Upper Rapti Sub-Division, Gonda

Colour_Cod(-	Clear	Brown	Brown	Brown	Brown	Light Brown	Light Brown	Clear	Light Brown	Clear	Clear	Brown
I_GEN(pH ur	7.9	7.7	7.5	7.8	7.8	8.2	8.1	8.2	8.2	8	7.9	8.1
Degrees Celsi	31	31	30.5	32	30	28.5	18	16	17	24	25	26
Odour_Code(	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free
SS(mg/L)												
TDS(mg/L)	177	155	140	156	156	174	164	175	155	200	210	180
CHEMICAL INDICES												
Total(mgCaC	191.75	178.02	151.35	145.42	158.52	180.6	170.86	190.34	166.98	239.07	189.41	207.09
_Ca(mgCaCO	479.38	445.06	378.38	363.54	396.29	451.5	427.14	475.86	417.46	597.69	473.52	517.73

Water Quality Summary (River Water Summary) for the period : 2017 - 2018

Station Name: Balrampur(018-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Rapti Sub Division: Upper Rapti Sub-Division, Gonda

PARAMETERS	No. of Observations	Maximum	Minimum	Mean	Flood (Jun-Oct)	Winter (Nov-Feb)	Summer (Mar-May)
Q (cumec)	365	2022.89	10.26	199.6	428.23	46.31	19.33
CHEMICAL							
Cl	12	15	7	10.5	8.6	10.5	13.67
HCO3	12	219.6	121.6	171.87	148.68	173.24	208.71
SiO2	12	9.8	8.2	8.88	8.96	8.8	8.83
F	12	0.26	0.18	0.21	0.2	0.2	0.23
P-Tot	12	0.36	0.24	0.28	0.27	0.26	0.3
B	12	0.16	0.1	0.13	0.12	0.12	0.14
Na	12	10.8	4.8	7.18	5.7	7.28	9.53
Alk-Phen	12	0.91	0	0.08	0.2	0	0
SO4	12	18.4	12	14.35	13.52	14.15	16
ALK-TOT	12	180	101.5	143.23	127.51	142	171.07
K	12	6.7	4.1	5	4.98	4.77	5.33
CO3	12	1.1	0	0.12	0.3	0	0
Mg	12	26.83	16.5	20.08	18.58	19.99	22.71
Ca	12	41.28	25	31.34	28.46	30.53	37.22
NH3-N	12	0.28	0.2	0.23	0.22	0.22	0.25
TRACE & TOXIC							
PESTICIDES							
BIOLOGICAL/BACTEOROLOGICAL							
Tcol-MPN	12	4000	700	1791.67	3040	875	933.33
COD	12	12	4	7	7.6	5.5	8
BOD3-27	12	3.9	1.17	2.31	2.96	1.37	2.49
FCol-MPN	12	2500	300	950	1780	375	333.33
DO_SAT%	12	8.62	4.7	6.39	5.64	7.64	5.94
PHYSICAL							
TDS	12	210	140	170.17	156.8	167	196.67
pH_GEN	12	8.2	7.5	7.95	7.74	8.18	8
EC_GEN	12	350	230	282.5	260	277.5	326.67
Temp	12	32	16	25.75	30.9	19.88	25
pH_FLD	12	8	7	7.62	7.6	7.38	8
EC_FLD	4	325	239	278.75		312	267.67
CHEMICAL INDICES							
HAR_Total	12	239.07	145.42	180.78	165.01	177.2	211.86
HAR_Ca	12	597.69	363.54	451.96	412.53	442.99	529.65

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Balrampur(018-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Rapti Sub Division: Upper Rapti Sub-Division, Gonda

PARAMETERS	Flood (Jun-Oct)											
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2007-2008
Q (cumec)	512.08	561.71	456.17	401.44	379.32	373.69	540.86	367.27	219.07	439.34	428.23	65.81
BIOLOGICAL/BACTEOROLOGICAL												
BOD3-27			0.98	0.88	0.78	0.91	0.98	0.95	1.61	1.6	2.96	
COD				4.5	6	5	5.6	5	7.2	7.83	7.6	
DO	6.97	7.1	7.03	7.57	7.42	7.25	6.86	6.67	6.59	6.83		7.15
DO_SAT%	92.92	91.71	93.95	100.77	99.89	95.95	91.4	87.62	87.79	90.34	5.64	81.07
FCol-MPN										2500	1780	
Tcol-MPN										4500	3040	
CHEMICAL												
ALK-TOT	281.83	298.64	163.05	140	121.52	134.4	145.6	122.3	141	131.2	127.51	346.92
Alk-Phen	5.83	5.73	0.93	5.58	1.56	1.59	0.8	8.27	10.96	2.39	0.2	8.47
B	0.09	0.16	0.15	0.13	0.23	0.14	0.19	0.22	0.18	0.18	0.12	0.15
CO3	7.02	6.9	1.12	6.72	1.88	1.92	0.96	9.96	10.81	2.88	0.3	10.2
Ca	33.04	33.6	36.85	32	27.4	29.92	30.96	24.8	39.23	35.1	28.46	42
Cl	10.51	12.92	14.4	14.41	12.83	13.63	16.05	14.41	10.42	10.06	8.6	17.4
F	0.14	0.13	0.15	0.16	0.13	0.14	0.17	0.18	0.29	0.28	0.2	0.13
Fe	0.2				0.12							0.25
HCO3	164.7	175.07	196.65	157.14	144.44	160.06	175.68	128.95	154.22	154.21	148.68	201.15
K	3.83	3.99	4.77	4.85	4.61	4.85	4.54	4.54	4.72	4.46	4.98	4.01
Mg	9.62	8.68	17.61	17.54	17.31	20.41	19.37	18.13	15.98	15.88	18.58	13.85
NH3-N			0.08	0.15	0.5	0.5	0.28	0.34	0.31	0.32	0.22	
NO2+NO3		0.09	0.1	0.08	0.87	0.63	0.61	0.38	0.49	0.53		
NO2-N	0.04	0.05	0.05	0.04	0.15	0.15	0.24	0.02	0.03	0.13		0.06
NO3-N		0.04	0.05	0.04	0.71	0.48	0.37	0.35	0.46	0.39		
Na	8.51	8.46	10.76	8.14	7.11	6.53	10.03	5.38	6.54	6.01	5.7	8.68
Ni												
P-Tot			0.08							0.31	0.27	
SO4	23.81	15.94	20.48	14.98	14.46	12.1	16.51	15.26	19.01	15.62	13.52	13.2
SiO2	9.94	8.76	6.3	5.56							8.96	10.93
o-PO4-P	0.03	0.02	0.03	0.07	0.12	0.26	0.32	0.43	0.29			0.03
CHEMICAL INDICES												
HAR_Ca											412.53	
HAR_Total	122.69	120.15	165	153.1	140.49	159.85	158.1	137.53	165.13	153.91	165.01	162.71
Na%	12.85	13.34	12.04	9.87	9.59	7.74	11.66	7.59	7.79	7.54		10.18
RSC	0.49	0.71	0.22	0	0	0	0	0	0	0		0.4
SAR	0.34	0.34	0.36	0.28	0.26	0.22	0.35	0.2	0.22	0.21		0.3
PESTICIDES												
PHYSICAL												
EC_FLD						210						
EC_GEN	291.58	330.8	263.2	275.13	220.97	224.8	368.68	312	338	240	260	265.5
SS												

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Balrampur(018-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Rapti Sub Division: Upper Rapti Sub-Division, Gonda

Secchi	82.67	84	92	79.96	68.11	74.59	78.08	62	98.1	87.76		105
TDS		223.4	192.4	164.38	132.61	133.38	239	189.4	198.4	148.8	156.8	
Temp	30.59	28.8	30.7	30.78	31.22	30.09	30.53	29.9	30.5	30.5	30.9	21.88
Turb										4.32		
pH_FLD	7.2			7.12	8	7.59	7.13				7.6	
pH_GEN	8.17	8.43	7.89	8	7.84	8.14	8.16	8.41	8.44	8.19	7.74	8.27
TRACE & TOXIC												
As												
Cd												
Cr												
Cu												
Pb												
Zn												

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Balrampur(018-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Rapti Sub Division: Upper Rapti Sub-Division, Gonda

Winter (Nov-Feb)

2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016
77.49	84.13	89.03	68.47	61.08	65.92	57.3	40.27
	1.18	0.59	0.93	0.73	0.98	0.98	1.22
		3.25	8.75	5.75	5	3	7.5
7.13	7.08	7.55	7.38	7.07	6.81	6.76	7.1
79.96	75.42	82.9	80.38	77.2	77.28	73.83	80.35
350.13	157.58	120	181	135	133	161	185
7.47	5.92	0	0	0	6.97	19.92	10.96
0.15	0.14	0.16	0.17	0.17	0.2	0.22	0.18
9	7.14	0	0	0	8.4	24	13.2
36.55	37.97	28.85	36.1	29.25	31.4	48.15	42.15
13.49	15.45	13.05	15	15	15	13.93	9.5
0.15	0.16	0.16	0.15	0.16	0.17	0.21	0.3
234.85	177.74	146.4	220.82	164.7	145.18	147.62	198.86
3.13	3.12	4.59	4.4	4.5	3.81	2.75	5.08
17.1	18.54	16.77	24	19.35	19.08	16.77	21.14
	0.1	0.16	0.65	0.45	0.36	0.33	0.32
0.14	0.08	0.09	0.62	0.46	0.57	0.49	0.47
0.05	0.04	0.04	0.14	0.1	0.24	0.1	0.01
0.09	0.05	0.04	0.48	0.37	0.33	0.39	0.45
8.05	13.33	6.79	8.05	7.3	7.99	7.82	6.21
0.1	0.14						
12.72	18.17	17.16	12	18.12	13.99	20.76	18.72
7.41	6.38	6.05					
0.01	0.17	0.13	0.11	0.39	0.3	0.33	0.32
162.63	172.38	141.99	190.23	153.75	157.98	190.24	193.46
10.21	13.99	9.12	8.15	9.01	9.78	8.2	6.39
0.92	0.04	0	0	0	0	0	0
0.29	0.44	0.25	0.25	0.26	0.28	0.25	0.2
329.25	339	320	302.5	327.5	368.97	360	287.5

91.38	94.98	72.12	90.25	73.12	78.17	120.38	105.38
241.75	210.67	192	183.25	203.25	239.31	197.25	180
21.12	18.75	20.25	19.62	20	21.84	19.88	21.75
	7.25	7.12	7.38	6.9	7.2		
8.09	8.32	8.08	8.09	8.12	8.47	8.59	8.41

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Balrampur(018-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Rapti Sub Division: Upper Rapti Sub-Division, Gonda

		Summer (Mar-May)										
2016-2017	2017-2018	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
48.8	46.31	28.42	29.5	29.33	35.06	22.84	22.46	25.2	26.7	14.56	30.76	19.33
1.66	1.37		0.59	1.03	0.79	0.92	0.78	0.98	1.31	0.98	2.3	2.49
8.75	5.5				9	6	17.33	6.67	6.67	6.33	5.67	8
6.79		7.12	7.08	7.61	7.35	7.19	7.45	6.47	6.99	6.99		
59.15	7.64	82	84.59	93.3	86.79	83.72	87.23	75.39	84.99	85.76	5.97	5.94
975	375										1600	333.33
1960	875										3200	933.33
149.92	142	417.03	210.67	149.26	122.76	197.33	158.67	153.33	153.33	156.45	141.69	171.07
2.26	0	8.05	13.28	3.98	2.66	5.31	7.97	6.64	14.61	4.13	0.75	0
0.18	0.12	0.21	0.11	0.16	0.18	0.15	0.18	0.21	0.2	0.17	0.19	0.14
2.43	0	9.7	16	4.8	3.2	6.4	9.6	8	17.6	4.98	2.23	0
37.1	30.53	45.33	32.67	31.53	28.93	33.2	33.2	36.2	35.53	35.62	33.37	37.22
10.8	10.5	26.62	15.26	18.59	14.68	17.28	21.3	20.12	13.25	12.56	12.67	13.67
0.28	0.2	0.14	0.13	0.16	0.16	0.15	0.19	0.19	0.22	0.32	0.27	0.23
		0.3								1		
167.29	173.24	244.41	224.48	172.33	143.27	227.73	174.05	170.8	151.28	180.74	139.4	208.71
4.93	4.78	4.82	3.91	5.09	5.36	6.39	4.5	4.04	3.39	5.16	6.33	5.33
20.84	20	14.42	14.42	22.11	17.17	28.23	20.98	21.67	20.29	19.91	22.57	22.71
0.31	0.22			0.16	0.15	0.61	0.38	0.33	0.35	0.32	0.29	0.25
0.41			0.7	0.1	0.27	0.49	0.64	0.57	0.5	0.44		
0.08		0.08	0.05	0.05	0.12	0.15	0.2	0.17	0.04	0		
0.34			0.65	0.06	0.16	0.34	0.44	0.4	0.46	0.44		
6.81	7.28	9.35	10.2	12.05	8.14	10.43	12.19	8.66	7.21	7.7	8.2	9.53
										1		
0.34	0.26		0.06	0.2	0.14						0.33	0.3
17.43	14.15	20.16	78.56	40.47	19.53	8.48	12.9	20	14.72	16.94	16.2	16
	8.8	11.47	6.9	6	6.27							8.83
		0.03		0.2	0.11	0.23	0.35	0.27	0.25	0.35		
489.79	442.99										488.68	529.65
184.02	177.2	173.41	141.74	170.95	143.89	200.62	170.41	180.78	173.38	171.86	195.47	211.86
7.21		10.23	13.14	12.91	10.51	9.89	13.29	9.23	8.26	8.6		
0		0.88	1.4	0	0	0.06	0	0	0	0		
0.22		0.31	0.37	0.4	0.3	0.32	0.41	0.28	0.24	0.26		
	312										14	267.67
297.88	277.5	279.33	339.67	345.65	313.18	340	332.73	400	316.67	290	299.33	326.67
											9	

96.03		113.33	81.67	79.65	72.36	83	82.55	90.5	88.83	88.83		
182.55	167		229	207.83	184.09	198	222.73	246.67	176	182.33	183.33	196.67
19.68	19.88	22.67	24.17	25.52	24.05	23.17	23.3	23.17	25.33	25.83	27	25
5.07												
8	7.38			7.5	7.5	8.01	7.5				8.17	8
8.37	8.17	8.37	8.12	8.19	8.19	8.14	8.25	8.22	8.85	8.33	8.23	8
										1		
										1		
										2		
										1		
										1		
										1		

HISTORY SHEET (WATER QUALITY)

		Water Year	: 2017 - 2018
Site	: Basti	**Code**	: 026-MGD1LKN
State	: Uttar Pradesh	**District**	Basti
Basin	: GANGA	**Independent River**	: Ganga
Tributary	: Ghagra	**Sub Tributary**	: Kwano
Sub-Sub Tributary	: -	**Local River**	: Kwano
Division	: Middle Ganga Division-I (MGD-I), Lucknow	**Sub-Division**	: Upper Rapti Sub-Division, Gonda
Drainage Area	: 3005.0 Sq. Km.	**Bank**	: Left
Latitude	: 26°45'59''	**Longitude**	: 82°42'0''
Current Zero of Gauge (m)	: 76.941		

CATEGORY	Opening Date	Closing Date
Gauge	:	
Discharge	:	
Sediment	:	
Water Quality	:	

Reduced Level	Opening Date	Closing Date
76.941	24/04/1959	07/05/2015
76.941	07/05/2015	-

Water Quality Datasheet (River Water Analysis) for the period : 2017 - 2018

Station Name: Basti(026-MGD1LKN) | Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Kwano | Sub Division: Upper Rapti Sub-Division, Gonda

PARAMETERS	01/06/2017	01/07/2017	01/08/2017	01/09/2017	03/10/2017	01/11/2017	01/12/2017	01/01/2018	01/02/2018	05/03/2018	02/04/2018	01/05/2018
Q (cumec)	3.41	5.15	17.44	66.67	16.34	10.77	10.15	9.39	11.05	10.9	9.18	8.05
CHEMICAL												
IH3-N(mgN/l	0.4	0.38	0.3	0.2	0.26	0.3	0.24	0.22	0.2	0.25	0.28	0.22
B(mg/L)	0.25	0.22	0.16	0.1	0.14	0.18	0.16	0.15	0.14	0.16	0.18	0.14
F(mg/L)	0.42	0.38	0.28	0.2	0.28	0.3	0.26	0.28	0.22	0.26	0.28	0.26
P-Tot(mgP/L	0.6	0.55	0.48	0.26	0.32	0.34	0.3	0.32	0.28	0.34	0.34	0.28
Ca(mg/L)	45	43	32.68	26	34.4	36.12	32.68	32.68	30.96	46.44	48.88	46.52
K(mg/L)	9.2	8.8	6.5	2.8	3.4	3.8	3.2	3.4	2.8	3.4	4.5	4.2
SiO2(mg/L)	10.2	9.2	8.4	7	8.2	8.6	7.8	8	6.6	7.2	8	7.4
TOT(mgCaC0	154.12	224	180	104.1	148	156	144	148	140	192	203.43	209.63
HCO3(mg/L)	186.8	223.3	219.6	127	180.56	190.32	175.68	180.56	170.8	234.24	248.18	255.75
Na(mg/L)	14.8	14	10.1	5.7	7.7	8.4	7.8	8	6	9.5	10.5	12.3
SO4(mg/L)	21	19.5	16.8	11.2	16	17.2	15.8	16	14.6	18.2	20	18.8
Cl(mg/L)	24	22	14	8	11	14	12	12	10	15	18	20
Phen(mgCaC0	0.5	0	0	0	0	0	0	0	0	0	0	0
Mg(mg/L)	26.8	25.8	21.67	15.5	22.7	24.77	20.64	23.22	22.7	25.8	26.65	24.28
CO3(mg/L)	0.6	0.7	0	0	0	0	0	0	0	0	0	0
NO2-N(mg/L												
TRACE & TOXIC												
PESTICIDES												
BIOLOGICAL/BACTEOROLOGICAL												
COD(mg/L)	11	10	5	18	9	5	10	11	7	6	4	28
MPN(MPN/1	2700	3000	1100	1500	900	300	300	500	300	400	300	500
OD3-27(mg/	3	2.8	1.57	3.9	3.9	1.77	2.55	2.15	1.37	1.96	1.37	13.7
Chlf-a(µg/L)												
SAT%(Percen	4.31	6.08	7.84	5.88	5.49	7.06	7.45	6.66	7.45	6.08	6.66	1.96
MPN(MPN/1	7000	7000	3000	4000	2100	900	1000	1100	900	1000	800	1200
PHYSICAL												
Degrees Celsi	28	30	28	27	28	26	18	16	17	21	22	23
GEN(µmho/	428	400	300	180	380	410	360	360	260	390	440	480
Colour_Cod(-	Clear	Clear	Brown	Clear	Clear	Clear	Clear	Clear		Clear	Clear	Clear

Water Quality Datasheet (River Water Analysis) for the period : 2017 - 2018

Station Name: Basti(026-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Kwano Sub Division: Upper Rapti Sub-Division, Gonda

SS(mg/L)												
dour_Code(	odour free	odour free	odour free	odour free	odour free	odour free	odour free	odour free		odour free	odour free	odour free
_GEN(pH ur	8	7.6	7.5	7.7	7.8	8	8.1	8.1	8.2	8	7.8	7.6
_FLD(µmho/(									312	348	338	338
TDS(mg/L)	257	240	180	108	230	246	216	216	155	235	365	288
H_FLD(pH un	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7	8	7.5	7.5
CHEMICAL INDICES												
_Ca(mgCaCO	636.25	609.17	475.86	367.71	500.21	531.06	469.42	485.54	464.38	645	675.73	636.33
Total(mgCaC	254.5	243.67	190.34	147.08	200.08	212.43	187.77	194.22	185.75	258	270.29	254.53

Water Quality Summary (River Water Summary) for the period : 2017 - 2018

Station Name: Basti(026-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Kwano Sub Division: Upper Rapti Sub-Division, Gonda

PARAMETERS	No. of Observations	Maximum	Minimum	Mean	Flood (Jun-Oct)	Winter (Nov-Feb)	Summer (Mar-May)
Q (cumec)	365	83.9	3.4	16.36	25.79	10.06	8.88
CHEMICAL							
Cl	12	24	8	15	15.8	12	17.67
HCO3	12	255.75	127	199.4	187.45	179.34	246.06
SiO2	12	10.2	6.6	8.05	8.6	7.75	7.53
F	12	0.42	0.2	0.28	0.31	0.26	0.27
P-Tot	12	0.6	0.26	0.37	0.44	0.31	0.32
B	12	0.25	0.1	0.16	0.17	0.16	0.16
Na	12	14.8	5.7	9.57	10.46	7.55	10.77
Alk-Phen	12	0.5	0	0.04	0.1	0	0
ALK-TOT	12	224	104.1	166.94	162.04	147	201.69
SO4	12	21	11.2	17.09	16.9	15.9	19
K	12	9.2	2.8	4.67	6.14	3.3	4.03
CO3	12	0.7	0	0.11	0.26	0	0
Mg	12	26.8	15.5	23.38	22.49	22.83	25.58
Ca	12	48.88	26	37.95	36.22	33.11	47.28
NH3-N	12	0.4	0.2	0.27	0.31	0.24	0.25
TRACE & TOXIC							
PESTICIDES							
BIOLOGICAL/BACTEOROLOGICAL							
Tcol-MPN	12	7000	800	2500	4620	975	1000
COD	12	28	4	10.33	10.6	8.25	12.67
BOD3-27	12	13.7	1.37	3.34	3.03	1.96	5.68
FCol-MPN	12	3000	300	983.33	1840	350	400
DO_SAT%	12	7.84	1.96	6.08	5.92	7.15	4.9
PHYSICAL							
TDS	12	365	108	228	203	208.25	296
pH_GEN	12	8.2	7.5	7.87	7.72	8.1	7.8
EC_GEN	12	480	180	365.67	337.6	347.5	436.67
Temp	12	30	16	23.67	28.2	19.25	22
pH_FLD	12	8	7	7.5	7.5	7.38	7.67
EC_FLD	4	348	312	334		312	341.33
CHEMICAL INDICES							
HAR_Total	12	270.29	147.08	216.55	207.13	195.04	260.94
HAR_Ca	12	675.73	367.71	541.39	517.84	487.6	652.35

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Basti(026-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Kwano Sub Division: Upper Rapti Sub-Division, Gonda

PARAMETERS	2007	2008	2010	2011	2012	2013	2014	2015	2016	2017	2007-2008	2008-2009	2009-2010
Q (cumec)	53.33	107.93	130.68	100.73	83.53	85.05	23.05	38.61	18.33	25.79	10.92	11.04	8.62
BIOLOGICAL/BACTEOROLOGICAL													
BOD3-27			2.26	2.12	2.08	1.53	2.79	4.79	2.68	3.03			1.62
COD			12	31.4	10.4	9.8	13.2	13.8	11.58	10.6			
DO	7.52	6.32	6.39	6.44	6.35	6.23	6.51	4	5.92		7.63	6.63	7.24
DO_SAT%	96.43	81.12	83.42	82.59	85.18	82.77	84.3	52.12	76.91	5.92	85.03	71.81	77.42
FCol-MPN									5500	1840			
Tcol-MPN									6500	4620			
CHEMICAL													
ALK-TOT	200.8	143.5	154	134.64	142.4	140.8	116	170.4	156.06	162.04	300.9	292.68	175.44
Alk-Phen	5.83	5.73	11.16	5.45	1.59	1.59	5.58	12.75	3.19	0.1	9.71	1.19	10.28
B	0.07	0.15	0.14	0.28	0.13	0.17	0.22	0.19	0.19	0.17	0.13	0.12	0.18
CO3	7.02	6.9	13.44	6.57	1.92	1.92	6.72	15.36	3.84	0.26	11.7	1.44	12.38
Ca	22.88	38.4	30.6	28.87	32.04	30.28	25.48	42.32	41.02	36.22	29	40.48	40.75
Cl	27.12	14.98	20.87	11.26	13.63	16.05	24.35	26.06	14.46	15.8	39.85	13.93	14.99
F	0.13	0.13	0.15	0.12	0.14	0.17	0.16	0.3	0.31	0.31	0.15	0.15	0.2
Fe	0.15			0.11							0.2		
HCO3	115.29	161.04	160.55	150.92	169.82	167.87	127.86	176.66	182.58	187.45	171.56	354.14	188.86
K	3.83	3.6	4.22	4.7	4.93	2.5	4.14	5.47	6.14	6.14	4.11	3.82	2.53
Mg	9.96	8.68	17.76	12.99	19.59	16.5	16.72	19.8	18.78	22.49	13.79	16.95	16.27
NH3-N			0.18	0.43	0.55	0.25	0.32	0.89	0.34	0.31			0.11
NO2+NO3		0.18	0.22	1.13	0.71	0.56	0.49	0.52	0.61			0.28	0.12
NO2-N	0.05	0.05	0.15	0.14	0.15	0.22	0.15	0.05	0.19		0.06	0.2	0.05
NO3-N		0.13	0.07	0.99	0.56	0.34	0.34	0.47	0.42			0.09	0.07
Na	7.82	8.42	25.62	16.13	18.08	13.8	16.7	16.65	8.48	10.46	8.34	26.17	23.76
Ni													
P-Tot		0.31							0.33	0.44		0.1	0.23
SO4	24	26.11	17.76	13.4	17.95	14.73	11.9	19.3	16.69	16.9	36.96	2.63	16.22
SiO2	9.68	8.84	5.42							8.6	10.5	6.31	6.88
o-PO4-P	0.18	4.34	0.1	0.13	0.29	0.26	0.42	0.3			0.17	0.04	0.19
CHEMICAL INDICES													
HAR_Ca										517.84			
HAR_Total	98.71	132.15	150.51	126.37	161.71	144.45	133.36	188.32	180.79	207.14	129.96	171.37	169.5
Na%	14.23	12.03	25.77	20.1	19.1	16.62	20.05	15.94	8.65		12.06	24.6	23.15
RSC	0.24	0.25	0.19	0.22	0.06	0.1	0.02	0	0		0.62	2.44	0.34
SAR	0.34	0.32	0.89	0.62	0.62	0.49	0.62	0.54	0.27		0.32	0.88	0.8
PESTICIDES													
PHYSICAL													
EC_FLD					310								
EC_GEN	262	190	334.2	243.8	256.5	301.6	366	354	295	337.6	149	298.75	408.71
SS													
Secchi	57.16	96	76.5	72.2	79.78	75.7	63.7	105.8	102.54		72.5	101	101.85

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Basti(026-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Kwano Sub Division: Upper Rapti Sub-Division, Gonda

TDS		126.6	199	143.2	149.27	193.4	222.4	211.8	184.4	203		155.25	241.84
Temp	28.35	28.3	29.3	28.3	31.09	30.3	29.1	29.6	29	28.2	20.5	19.12	18.73
Turb									4.42				
pH_FLD	9	7.48	8	8.5	8.59					7.5		8.95	8.83
pH_GEN	7.47	7.14	7.96	7.69	7.98	7.9	8.36	8.43	8.05	7.72	7.31	8.13	8.41
TRACE & TOXIC													
As													
Cd													
Cr													
Cu													
Pb													
Zn													

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Basti(026-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Kwano Sub Division: Upper Rapti Sub-Division, Gonda

Flood (Jun-Oct)

2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2008	2009
10.12	10.52	25.98	34.26	11.74	23.72	6.74	10.06	3.88	6.07
2.01	1.96	2.09	2.6	2.11	3.09	3.33	1.96		2.54
7	25	20.67	12	11.25	12.5	12	8.25		
6.42	6.77	6.21	6.27	6.03	5.93	5.75		8.13	5.88
69.44	72.57	66.17	69.46	67.55	71.69	67.97	7.15	87.7	71.42
						3433.33	350		
						7220	975		
136.97	206.75	144	144	193	221	190.67	147	349.34	261.67
0	2.99	0	8.96	13.94	2.99	0	0	9.71	11.62
0.18	0.15	0.16	0.19	0.23	0.2	0.2	0.16	0.19	0.08
0	3.6	0	10.8	16.8	3.6	0.6	0	11.7	14
26.65	42.1	27.53	34.4	59.35	54.6	43.76	33.11	41.33	31.53
15.98	15	18.7	26	33.99	21.48	16.8	12	36.8	16.57
0.18	0.14	0.16	0.18	0.36	0.34	0.31	0.27	0.14	0.15
								0.25	
167.1	244.92	175.68	153.72	201.3	262.3	206.31	179.34	201.1	290.77
4.49	3.91	3	2.25	4.26	6.65	5.62	3.3	4.69	3.39
14.91	24.27	17.54	19.59	23.72	26.55	19.66	22.83	14.42	15.47
0.17	0.62	0.46	0.34	0.31	0.35	0.32	0.24		
0.8	0.86	0.43	0.61	0.51	0.57	0.49			0.09
0.07	0.13	0.09	0.27	0.11	0.07	0.12		0.08	0.02
0.74	0.72	0.35	0.33	0.4	0.5	0.37			0.07
22.6	23	18.86	22.6	24.95	13.68	10.19	7.55	9.43	32.43
						0.41	0.31		0.05
16.55	13.56	18.72	18.84	54.96	19.92	16.66	15.9	42.08	20.32
6.25							7.75	10.8	2.13
0.17	0.11	0.38	0.3	0.34	0.36			0.17	
							487.6		
128.74	206.37	141.9	167.63	247.22	247.12	212.13	195.04	163.41	143.3
26.82	19.16	21.95	22.61	17.82	10.5	9.15		10.86	32.47
0.18	0.15	0.06	0.04	0	0	0		0.44	2.39
0.87	0.7	0.69	0.76	0.7	0.38	0.3		0.32	1.18
							312		
431.61	367.5	453.18	495	455	407.5	366.67	347.5	163.33	385.33
66.84	105.25	68.64	86	148.38	136.5	116.1		103.33	78.83

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Basti(026-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Kwano Sub Division: Upper Rapti Sub-Division, Gonda

258.39	201.75	267.73	320	246.25	251.5	229.29	208.25		236.33
19.21	19.12	18.84	20.5	21	25.12	21.67	19.25	19.17	24.5
						3.1			
8.33	8.75	9				8	7.38		9
7.87	7.81	7.86	8.25	8.21	8.15	8.04	8.1	7.4	8.24

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

Station Name: Basti(026-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Kwano Sub Division: Upper Rapti Sub-Division, Gonda

2010	2011	2012	2013	2014	2015	2016	2017	2018	2009
8.22	6.48	7.38	17.79	22.14	11.42	3.89	4.04	8.88	
2.5	2.17	1.9	1.44	2.87	3.27	2.61	4.43	5.68	2.48
	13	21	29.33	14.67	12	13.67	9	12.67	
6.48	6.4	6.08	6.21	6.21	5.49	6.21			6.29
79.12	74.16	71.43	72.88	70.32	65.07	71.53	4.04	4.9	82.12
							2566.67	400	
							4566.67	1000	
209.37	157.22	213.5	192	177.33	196	209.43	210.36	201.69	219.65
10.67	3.83	2.66	13.28	7.97	13.28	2.56	0.86	0	0.97
0.19	0.2	0.18	0.19	0.23	0.22	0.2	0.24	0.16	0.16
12.86	4.62	3.2	16	9.6	16	3.08	1.97	0	1.17
36.77	29.75	37.8	32.67	36.13	43.6	46.53	45.72	47.28	38.87
19.89	18.56	18.7	25.44	37.16	35.97	23.26	23.67	17.67	15.58
0.17	0.15	0.16	0.17	0.23	0.27	0.35	0.42	0.27	0.17
						1			
229.29	182.41	253.96	201.71	196.83	206.59	249.25	208.37	246.06	265.59
4.16	5.21	6.65	4.04	5.21	5.47	7.13	9.37	4.03	4.63
22.36	16.47	28.19	22.03	20.98	23.04	26.77	26.15	25.58	19.82
0.21	0.16	0.69	0.38	0.37	0.33	0.36	0.39	0.25	0.08
0.16	0.28	0.89	0.68	1.11	0.54	0.59			0.1
0.07	0.12	0.16	0.21	0.73	0.06	0.11			0.06
0.09	0.16	0.74	0.47	0.38	0.48	0.48			0.03
29.01	28.35	19.78	26.68	31.13	29.44	15.05	14.17	10.77	29.01
						1			
0.32							0.6	0.32	0.1
10.98	19.32	12.48	22.56	21.12	17.12	12.63	13.97	19	17.89
6.71	6.55							7.53	5.35
0.33	0.2	0.24	0.35	0.24	0.3	0.4			0.06
							639.71	652.35	
184.78	143.02	211.95	173.47	177.75	205.02	227.71	255.88	260.94	179.52
25.15	29.3	16.46	25.1	26.9	23.94	12.21			25.63
0.51	0.31	0.15	0.43	0.03	0.07	0			0.89
0.94	1.04	0.6	0.9	1.02	0.92	0.44			0.95
							14	341.33	
480	420.87	470	437.27	550.45	466.67	403.33	416.33	436.67	432
							9		
91.67	74.41	94.5	82.25	90.52	109	116			97.1

Water Quality Seasonal Average (River Water) for the period : 2017 - 2018

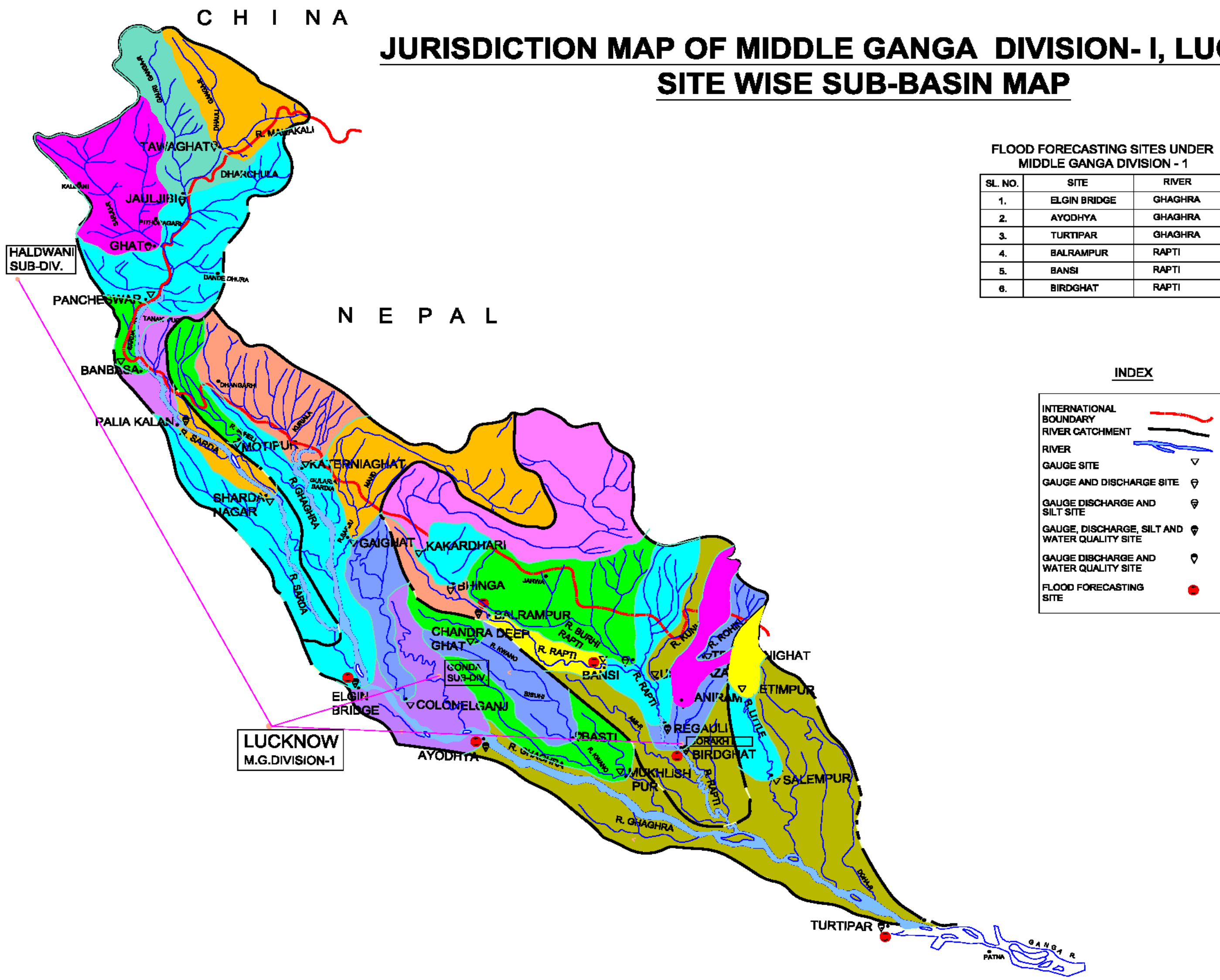
Station Name: Basti(026-MGD1LKN) Division: Middle Ganga Division-I(MGD-I), Lucknow

Local River: Kwano Sub Division: Upper Rapti Sub-Division, Gonda

288.33	253.91	280	282.73	346.82	266.67	253.33	254.67	296	273.4
26	22.57	23.5	23.5	21.8	24.33	22.5	23	22	29.4
8.5	9	7.75	9	7.5			8	7.67	
8.47	8.18	7.96	8.2	8.29	8.91	8.13	8.03	7.8	8.17
						1			
						1			
						2			
						1			
						1			
						1			

Index Map

JURISDICTION MAP OF MIDDLE GANGA DIVISION- I, LUCKNOW
SITE WISE SUB-BASIN MAP

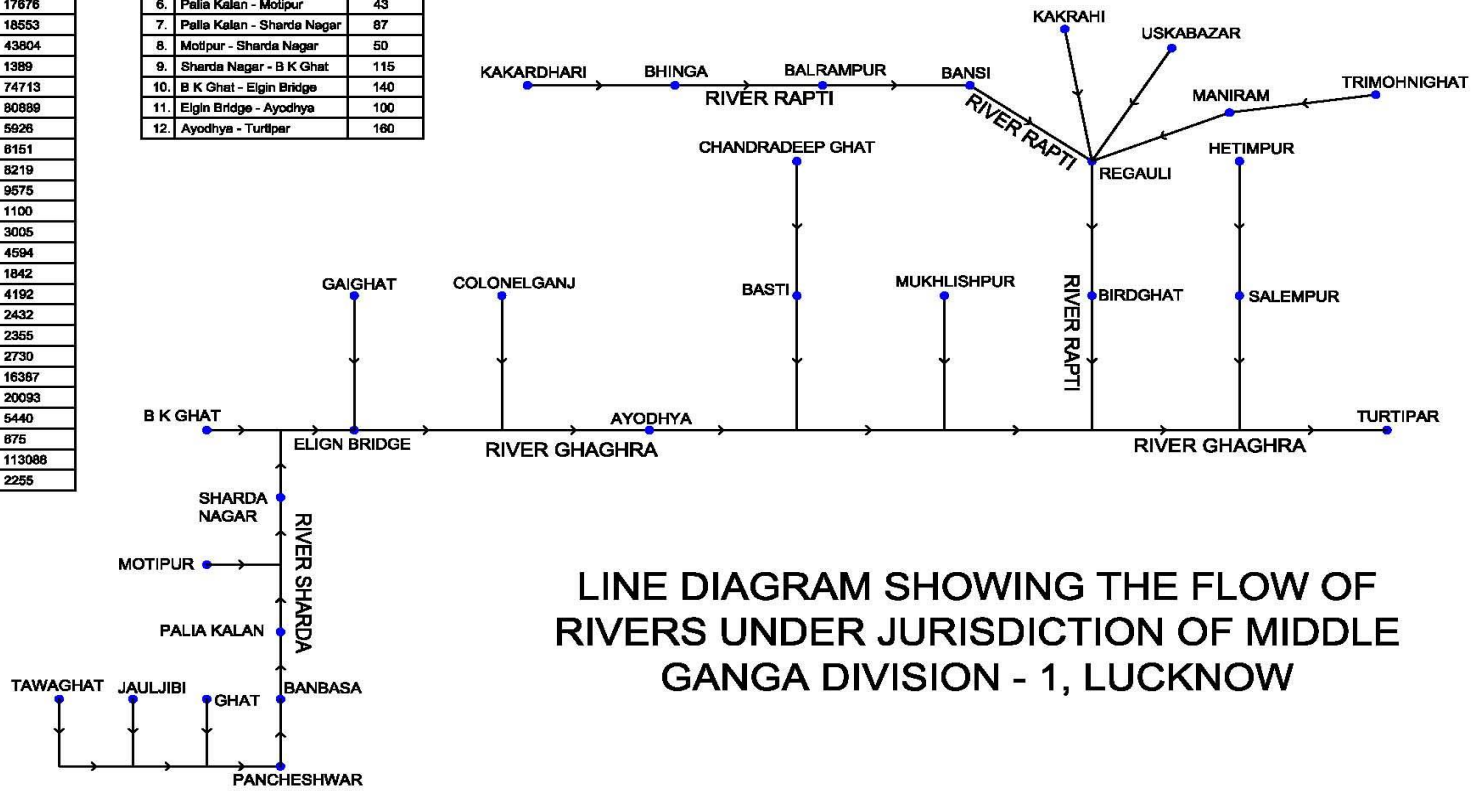


FLOOD FORECASTING SITES UNDER MIDDLE GANGA DIVISION - 1

SL. NO.	SITE	RIVER
1.	ELGIN BRIDGE	GHAGHRA
2.	AYODHYA	GHAGHRA
3.	TURTIPAR	GHAGHRA
4.	BALRAMPUR	RAPTI
5.	BANSI	RAPTI
6.	BIRDGHAT	RAPTI

SL. NO.	SITE	CATCHMENT AREA (Sq Km)
1.	Tawaghat	1225
2.	Jauljibi	2150
3.	Ghat	3900
4.	Pancheswar	12293
5.	Banbasa	15820
6.	Palia Kalan	17676
7.	Sharda Nagar	18553
8.	B K Ghat	43804
9.	Motipur	1389
10.	Elgin Bridge	74713
11.	Ayodhya	80889
12.	Kakardhari	5926
13.	Bhinga	8151
14.	Balrampur	8219
15.	Bansi	9575
16.	Chandradeepghat	1100
17.	Basti	3005
18.	Gaighat	4594
19.	Colonelganj	1842
20.	Kakrahi	4192
21.	Uskabazar	2432
22.	Trimohinighat	2355
23.	Maniram	2730
24.	Regauli	16367
25.	Birdghat	20093
26.	Mukhlishpur	5440
27.	Hetimpur	875
28.	Turtipar	113088
29.	Salempur	2255

SL. NO.	SITE DESCRIPTION (From - To)	DISTANCE (Km)
1.	Tawaghat - Jauljibi	50
2.	Jauljibi - Ghat	217
3.	Ghat - Pancheswar	85
4.	Pancheswar - Banbasa	155
5.	Banbasa - Palia Kalan	155
6.	Palia Kalan - Motipur	43
7.	Palia Kalan - Sharda Nagar	87
8.	Motipur - Sharda Nagar	50
9.	Sharda Nagar - B K Ghat	115
10.	B K Ghat - Elgin Bridge	140
11.	Elgin Bridge - Ayodhya	100
12.	Ayodhya - Turtipar	160



LINE DIAGRAM SHOWING THE FLOW OF RIVERS UNDER JURISDICTION OF MIDDLE GANGA DIVISION - 1, LUCKNOW

ABBREVIATIONS AND SYMBOLS

N	: North
E	: East
sq. km.	: Square Kilometre
m	: Metre
o	: Degree
’	: Minute
”	: Second
SP	:Sodium Percentage
RSC	: Residual Sodium Carbonate
SAR	: Sodium Adsorption Ratio
HAR	: Hardness
mg/l	: Milligram per Litre
ml.	: Millilitre
pH	: Negative Logarithm of Hydrogen Ion Concentration